

white corollas.

The type of the form was collected by Andrew Ralph Moldenke and myself (no. 24627) in patches in open woodland at the Carnegie Timberline Experiment Station, at an altitude of 9800 feet, Hall Natural Area, Inyo National Forest, Mono County, California, on July 24, 1968, and is deposited in the herbarium of the Texas Research Foundation at Renner, Texas.

VERBENA SANTIAGUENSIS f. ALBIFLORA Moldenke, f. nov.

Haec forma a forma typica speciei corollis albis recedit.

This form differs from the typical form of the species in having white corollas.

The type of the form was collected by José Manuel Villegas Vaquero (no. 666) at Playa Grande, Partido Gral Pueyrredón, Buenos Aires, Argentina, on December 10, 1944, and is deposited in the Britton Herbarium at the New York Botanical Garden.

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XXI

Harold N. Moldenke

ERIOCAULON Gron.

Additional & emended synonymy: Eriocavlon L. apud Reich. in L., Syst. Pl. 1: 243. 1779. Eriocaulon Juss. ex Jolyclerc, Syst. Sex. Vég., ed. 2, 1: 101. 1810. Eriocolon Jolyclerc, Syst. Sex. Vég., ed. 2, 2: 474, sphalm. 1810. Eriocaulou Alv. Silv., Fl. Mont. 1: pl. 6 ["IV"], sphalm. 1928. Eriscaulon L. O. Williams, in herb.

Additional & emended bibliography: Breyn., Exot. Min. Cog. Pl. Cent. 1: 108--109, pl. 50. 1678; Moris., Pl. Hist. Univ. 3: 259--260, sect. 8, pl. 16, fig. 17. 1699; Pluk., Alm. Bot. Mant. 98. 1700; L., Sp. Pl., ed. 1, pr. 1, 1: 87 & 129 (1753) and 2: [1203]. 1753; J. A. Murr. in L., Syst. Veg., ed. 12, 109 & 834. 1774; Reich. in L., Syst. Pl. 1: 243--244 (1779) and 4: [668]. 1780; J. A. Murr. in L., Syst. Veg., ed. 13, 1: 108--109 (1783) and 2: 855 (1783) and ed. 14, 127--128 & [1004]. 1784; Palau y Verdera, Part. Pract. Bot. 1: 530--532. 1784; Jacq., Ind. Pl. 63. 1785; Lippert, Pflanzensyst. 1: 187--188 (1786) and 2: [2036]. 1786; Palau y Verdera, Part. Pract. Bot. 8: 214. 1788; Pers. in L., Syst. Veg., ed. 15, 132 & [1033]. 1797; J. A. Murr. in L., Syst. Veg., ed. 15 nov., 106--107 & 812. 1798; Jolyclerc, Syst. Sex. Vég., ed. 1, pr. 1, 92 & 781 (1798) and pr. 2, 92 & 781. 1803; Mouton-Fontenille in L., Syst. Pl. 1: 147--148 (1804) and 5: tab. 2: vii & tab. 12: xvii. 1805; Jolyclerc, Syst. Sex. Vég., ed. 2, 1: 101 (1810) and 2: 474. 1810; Roem. & Schult. in L., Syst. Veg., ed. 15 nov., 2: 56--57, 61, 861--870, & 938. 1817; Roem. & Schult., Mant. 2: 468--470 & 499. 1824; Spreng. in L., Syst. Veg., ed. 16, 1: 188 & 980 (1825) and 3: 774--776. 1826; Roem. & Schult., Mant. 3: 527, 671, & 687.

1827; Spreng. in L., Syst. Veg., ed. 16, 5: 267—268. 1828; Bong., Ess. Monog. Erioc. Brés. 1—12. 1831; Cham. & Schlecht., Limnaea 6: 43. 1831; A. Wood, Class-book, ed. 1, 405, 470, & 474. 1845; Lindl., Veg. Kingd., ed. 1, 122 & 818 (1846) and ed. 2, 122 & 818. 1847; A. Wood, Class-book, ed. 2, pr. 1, 564, 640, & 645 (1847), ed. 2, pr. 2, 564, 640, & 645 (1848), and ed. 10, pr. 1, 564, 640, & 645. 1848; A. Gray, Man. Bot., ed. 1, 514—515 & 703. 1848; A. Wood, Class-book, ed. 10, pr. 2, 564, 640, & 645 (1849), ed. 10, pr. 3, 564, 640, & 645 (1850), ed. 17, 564, 640, & 645 (1851), ed. 23, 564, 640, & 645 (1851), ed. 29, 564, 640, & 645 (1853), ed. 35, 564, 640, & 645 (1854), ed. 41, pr. 1, 564, 640, & 645 (1855), and ed. 41, pr. 2, 564, 640, & 645. 1856; A. Gray, Man. Bot., ed. 2, pr. 1, 488—489 & 713. 1856; Knieskern, Ann. Rep. N. J. Geol. Surv. 33. 1856; Walp., Ann. 5: 922—947 & 954. 1858; A. Gray, Man. Bot., ed. 2, pr. 2, 488—489 & [615] (1858) and ed. 2, pr. 3, 488—489 & [713]. 1859; Walp., Ann. 6: 1170—1171. 1861; Dalz. & Gibs., Bomb. Fl. 279—280, 316, & 325. 1861; A. Wood, Class-book, [ed. 42], pr. 1, 729—730, 826, & 832. 1861; A. Gray, Man. Bot., ed. 3, 488—489 & [615]. 1862; A. Wood, Class-book, [ed. 42], pr. 2, 729—730, 826, & 832. 1863; A. Gray, Man. Bot., ed. 4, pr. 1, 488—489 & [711] (1863) and ed. 4, pr. 2, 488—489 & [615]. 1864; A. Wood, Class-book, [ed. 42], pr. 3, 729—730, 826, & 832 (1865) and pr. 4, 729—730, 826, & 832. 1867; A. Gray, Man. Bot., ed. 5, pr. 1, 549—550 & 685 (1867) and ed. 5, pr. 2, 549—550 & 687. 1868; A. Wood, Class-book, [ed. 42], pr. 5, 729—730, 826, & 832. 1868; A. Gray, Field For. & Gard. Bot., ed. 1, pr. 1, 352 & 378 (1868) and pr. 2, 352 & 378. 1869; A. Wood, Class-book, [ed. 42], pr. 6, 729—730, 826, & 831 (1869) and pr. 7, 729—730, 826, & 831. 1870; A. Gray, Man. Bot., ed. 4, pr. 3, 488—489 & [615]. 1870; A. Wood, Am. Bot. & Flor., ed. 1, pr. 1, 355, 379, & 390 (1870), pr. 2, 355, 379, & 431 (1871), and pr. 3, 355, 379, & 431. 1872; A. Wood, Class-book, [ed. 42], pr. 8, 729—730, 826, & 831. 1872; A. Wood, Am. Bot. & Flor., ed. 1, pr. 4, 355, 379, & 431 (1873) and pr. 5, 355, 379, & 431. 1874; O. R. Willis, Cat. Pl. N. J. 67. 1874; Lesq., U. S. Geol. & Geogr. Surv. Terr. Ann. Rep. 7: 396. 1874; A. Wood, Am. Bot. & Flor., ed. 1, pr. 6, 355, 379, & 431. 1875; A. Wood, Class-book, [ed. 42], pr. 9, 729—730, 826, & 831. 1876; Lesq., U. S. Geol. Surv. Terr. Rep. 7: [Tert. Fl.] 106, pl. 16, fig. 2 & 2a. 1878; A. Gray, Man. Bot., ed. 5, pr. 8, 549—550 & 687 (1878) and pr. "8" [=9], 549—550 & 687. 1880; A. Gray, Field For. & Gard. Bot., ed. 1, pr. 3, 352 & 378. 1880; A. Wood, Class-book, [ed. 42], pr. 10, 729—730, 837, & 842. 1881; S. Wats., Proc. Am. Acad. 23: 283. 1888; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): [21] & 23—27, fig. 23 G—S. 1888; O. R. Willis in A. Wood, Am. Bot. & Flor., ed. 2, 355, 379, & 431. 1889; Wats. & Coult. in A. Gray, Man. Bot., ed. 6, pr. 1, 566—567 & 753 (1889) and pr. 2, 566—567 & 753. 1890; Niederlein, Bol. Mus. Prod. Argent. 3 (31): 336. 1890; L. H. Bailey in A. Gray, Field For. & Gard. Bot., ed. 2, 456. 1895; Penhallow, Brit. Assoc. Adv. Sci. Rep. 68: 527. 1899; Penhallow, Brit. Assoc. Adv. Sci. Bradford Meet. 335. 1900; Ruhl. in Pilg., Engl. Bot. Jahrb. 30: 146—147. 1901; Komarov, Fl.

Mansh. 1: 418—419. 1901; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 198—202. 1903; Prain, Bengal Fl., pr. 1, 121 & 1125—1127. 1903; V. A. Poulsen in Schmidt, Bot. Tidsskr. 26: 167. 1904; Keller & S. Br., Handb. Fl. Philad. 91—92. 1905; Rendle, Journ. Linn. Soc. Lond. Bot. 37: 474—476. 1906; Schlecht. in Engl., Bot. Jahrb. 40, Beibl. 92: 20. 1908; B. Long, Bartonica 2: 20. 1910; G. T. Stevens, Ill. Guide Flow. Fl. 114, 115, 718, & 746, pl. 9, fig. 5 & 9. 1910; Guillaum., Ann. Mus. Colon. Marseille, sér. 2, 9: 256. 1911; Creevey, Harper's Guide Wild Fls. 42, 44, [45], 469, & 529. 1912; W. Stone, Ann. Rep. N. J. State Mus. 1910: 323—325 & 817, pl. 28, fig. 1 & 2, & pl. 64, fig. 2. 1912; Britton & Br., Ill. Fl., ed. 2, 1: 453—455 & [678], fig. 1140—1143 (1913) and 3: 575 & 625. 1913; Fedch., Rastit. Turk. 811. 1915; House, N. Y. State Mus. Mem. 15 (1): 44, pl. 6A (1918) and 15 (2): 347 & 355. 1918; Knowlton, U. S. Geol. Surv. Bull. 696: 260, 670, 685, 778, & 812. 1919; Palm, Svensk. Bot. Tidsk. 14: 264. 1920; Hayata, Icon. Pl. Formos. 10: 49—56, fig. 27—31. 1921; Saida & Satô, Naigai Syokubutusi 1296, fig. 2009. 1921; Fern., Rhodora 23: 92 & 102. 1921; Rendle, Journ. Linn. Soc. Lond. Bot. 45: 259—260. 1921; Nakai in Mak. & Nemoto, Fl. Jap., ed. 1, 1303—1308. 1925; Mak., Nippon Shokubatsu 725. 1926; N. Taylor, Guide Wild Fls. 6—7, 323, & 333, fig. 13. 1928; Tatew., Veg. Apoi 119 & 131. 1928; Duthie, Fl. Upper Ganget. Plain 3: 318—320. 1929; Pool, Fls. & Flow. Fl., ed. 1, 299 & 359, fig. 169. 1929; Nakai, Veg. Apoi 76. 1930; Knowlton, U. S. Geol. Surv. Prof. Paper 155: 132—133. 1930; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. 1, 9: 1607—1620. 1931; Nakai in Mak. & Nemoto, Fl. Jap., ed. 2, 1510—1515. 1931; Komarov & Alis., Opred. Rast. Dal'nevost. Kr. 1: 340. 1931; Däniker, Vierteljahrsschr. Naturf. Gesell. Zürich 77, Beibl. 19: 91. 1932; Miyabe & Kudo, Journ. Fac. Agr. Hokkaido Imp. Univ. 27 [Fl. Hokk. & Saghal. 3]: 286. 1932; L., Sp. Pl., ed. 1, pr. 2, 1: 87 & 129 (1934) and 2: [1203]. 1934; House, Wild Fls. 44, 347, & 355, pl. 6A. 1934; Marie-Vict., Fl. Laurent., ed. 1, 54, 74, 546, 565, 674, 679—681, 837, & 892, fig. 244. 1935; Svenson, Torreya 35: 119. 1935; Steinberg in Komarov & Schischkin, Fl. U. S. S. R. 3: 494—498 & 748, pl. 27, fig. 1—5. 1935; Satake in Nakai, Icon. Pl. As. Orient. 2: 97—100, pl. 42 (1937) and 2: 173—176 & 192, pl. 65. 1938; Satake, Journ. Jap. Bot. 14: 264. 1938; E. D. Merr. & Metc., Lingn. Sci. Journ. 16: 79. 1937; Tera-zaki, Zoku Nipp. Syokubutu Zuhu fig. 3712. 1938; Little, Am. Midl. Nat. 19: 378. 1938; Honda, Nom. Pl. Jap. 461—463. 1939; Mak., Illustr. Fl. Jap. 8, 771, & E.26, fig. 2311—2316. 1940; Fern., Rhodora 43: 211. 1941; Pool, Fls. & Flow. Fl., ed. 2, 295 & 407, fig. 189. 1941; Erlandsson, Arkiv Bot. 30B (2): 1—4. 1942; Moldenke in Woodson & Schery, Ann. Mo. Bot. Gard. 31: 65—71. 1944; Moldenke, Phytologia 2: 220. 1947; Guillaum., Fl. Analyt. & Synopt. Nouv.-Caléd. 49—50 & 361. 1948; H. E. Jaques, Pl. Fam., ed. 2, 96, fig. 289. 1949; Moldenke, Phytologia 3: 181. 1949; Govindu, Journ. Mysore Univ. 10 (1): 4. 1949; K. Jessen, Proc. Roy. Irish Acad. 52B: 173, [174], 193, 202, & 249—250, pl. 4, fig. 56 & 57. 1949; Thirumalachar, Razi, & Swamy, Journ. Mysore Univ. 9 (5): 82. 1949; Razi, Journ. Mysore Univ. 11 (1): 6 (1950) and

11 (2): 29. 1950; Razi & Govindu, Journ. Mysore Univ. 12 (9): 107. 1952; Satake, Journ. Jap. Bot. 27: 268. 1952; R. S. Lamotte, Geol. Soc. Am. Mem. 51: 157. 1952; Butters & Abbe, Rhodora 55: 136. 1953; Thorne, Am. Midl. Nat. 52: 281. 1954; Hand, Bull. Torr. Bot. Club 81: 92. 1954; Razi, Proc. Nat. Inst. Sci. India 21B (2): 85. 1955; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1119--1128 & 1333. 1956; Koyama, Journ. Jap. Bot. 31: 6--11, fig. 3. 1956; Bourdu, Bull. Soc. Bot. France 104: 156--158, fig. A--F. 1957; Linderoth, Faunal Con. Eu. & N. Am. 240, 241, & 250. 1957; Anon., Algonquin Prov. Park Mus. Check-list 7. 1957; A. & D. Löve, Bot. Notiser Lund 111: 380--381 & 387. 1958; A. Löve, Rhodora 61: 31. 1959; Straka, Erdkunde 14: 61 & 63. 1960; Nath, Bot. Surv. South. Shan States 9, 20, & 62. 1960; Sparrow, Aquat. Phycomycet., ed. 2, [Univ. Mich. Stud. Sci. 15:] 376 & 1095. 1960; Anon., Billie Bear Plant List 3. 1961; Van Royen, Blumea 11: 224--225, fig. 1. 1961; Seerwani, Bull. Bot. Surv. India 4: 230. 1962; J. K. Maheshwari, Bull. Bot. Surv. India 5: 138. 1963; J. M. Gillet, Canad. Field Nat. 77: 139. 1963; Henry & Buker, Trillia 12: 105 & 131. 1964; Rouleau in Marie-Vict., Fl. Laurent., ed. 2, 83, 90, 546, 674, 679, 680, 837, & 857, fig. 244. 1964; Steinberg in Komarov & Schischkin, Fl. U. S. S. R., Engl. transl., 3: 392--395 & 512. 1964; Moldenke in Guillaum., Mém. Mus. Hist. Nat. Paris, new ser. B, 15: 6. 1964; Panigrahi, Chowdhury, Raju, & Deka, Bull. Bot. Surv. India 6: 241 & 260--261. 1964; R. Good, Geogr. Flow. Pl. 88, 182, 227, 293, 294, & 483. 1964; Roland & Sm., Proc. Nova Scot. Inst. Sci. 26 (2): 191--192, fig. 476, map 173. 1964; Hamblen, Journ. Ecol. [Brit.] 52: 581. 1964; Guillaum., Thorne, & Viro, Univ. Iowa Stud. Nat. Hist. 20 (7): 26. 1965; Van Steenis & Jacobs, Fl. Males. Bull. 20: 1359. 1965; Tatew. & Itô, Journ. Jap. Bot. 40: 156--157. 1965; Angely, Fl. Anal. Paran., ed. 1, 199--201. 1965; S. V. Ramaswami, Study Flow. Pl. Bangalore [thesis] 219--223 & 1406--1407. 1966; Begum, Curr. Sci. [India] 35: 262--263. 1966; Lourteig, Taxon 15: 31. 1966; Panigrahi, Bull. Bot. Surv. India 8: 13. 1966; Sebastine & Henry, Bull. Bot. Surv. India 8: 310. 1966; Faden, Idrobo, Jiminez, & Tomlinson, Common Dist. Int. Pl. Cerro Muerte 2. 1966; Hartley, Univ. Iowa Stud. Nat. Hist. 21: 150. 1966; F. H. Montgomery, Pl. from Sea to Sea 4, 9, & 390, fig. 822. 1966; Thornberry, U. S. Dept. Agr. Agric. Handb. 165: 137. 1966; Ogden, Quatern. Paleoecology 7: 175--183. 1967; Sterling, Outer Isl. 159, [161], 167, & 179. 1967; E. L. Braun, Vasc. Fl. Ohio 1: 308--310. 1967; Anon., Ind. Bibliogr. Bot. Trop. 4 (1): 18, 53, & 88. 1967; Begum, Bioresearch Index 1967: 2255. 1967; Satake, Nat. Sci. & Mus. 34: 161--162. 1967; E. G. Voss, Mich. Bot. 6 (2): 41 & 46, fig. 6. 1967; Begum, Proc. Indian Acad. Sci. B. 67 (4): 148--156. 1968; Adam, Adansonia 8: 445. 1968; Ogden, Biol. Abstr. 49: 9863. 1968; Winner, Biol. Abstr. 49: 11782. 1968; Hinds & Hathaway, Wildfls. Cape Cod 116, 117, & 168, fig. 107. 1968; Moldenke, Phytologia 18: 165--186 & 243--280. 1969; Anon., Biol. Abstr. 50 (1): S.61. 1969.

Another German vernacular name from literature for members of this genus is "Kugelbinse". It is worth noting here, also, that

the Eriocaulon spadiceum Lam., which is now usually regarded as a synonym of Scirpus brizaeformis Hutchinson, in the Cyperaceae, was regarded as a synonym of Schoenus spadiceus Vahl by Roemer & Schultes (1817).

Good (1964) says that Eriocaulon and Lobelia "are an interesting pair in which the chief feature is absence from western Eurasia except for occurrence on the Atlantic margin".

Ogden (1967) reports that Eriocaulon stems (and he doubtless refers here to E. pellucidum Michx.) rooted near the lake margin on Martha's Vineyard island off the southern coast of Massachusetts show a radiocarbon content of plus 37 percent (above the modern reference standard). The mean of four samples from the upper 10 cm. of sediment shows a radiocarbon content of only plus 4.7 percent, the lower value implies mixing with deeper sediments for there is no detectable limestone in the till to reduce the proportion of C¹⁴. Sedimentation rates per century are about 4.5 cm. for the early postglacial, 5 cm. for the hypsithermal, and 6.8 cm. for the upper 15 cm. of the core. In this (and another) lake the sedimentation rates for post-colonial times are considerably greater than in the rest of the cores.

It is perhaps also worthy of mention here that the Niederlein (1890) reference given in the bibliography of this genus is sometimes cited as "31: 60. 1890". The Stone (1912) reference is often cited as "1911", the date given on the title-page, but the work was actually not issued until January 26, 1912. Similarly, the Erlandsson (1942) reference is often cited as "1940", but the part in question was not actually issued until February 25, 1942. The Ruhland (1901) work cited above is often cited as "1902", but was actually issued on July 2, 1901 -- the "1902" is merely the volume title-page date.

ERIOCAULON CINEREUM R. Br.

Additional & emended synonymy: Eriocaulon sieboldianum Sieb. & Zucc. ex Walp., Ann. 5: 933, in syn. 1858. Eriocaulon bucharicum Borrm. in Fedch., Rastit. Turk. 811. 1915.

Additional & emended bibliography: Spreng. in L., Syst. Veg., ed. 16, 3: 775. 1826; Walp., Ann. 5: 933 & 934 (1858) and 6: 1170 & 1171. 1861; Mak., Bot. Mag. Tokyo 8: 507. 1894; Komarov, Fl. Mansh. 1: 418. 1901; Prain, Bengal Fl., pr. 1, 1127. 1903; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 199--201. 1903; Fyson, Journ. Indian Bot. 2: 199 & 313. 1921; Duthie, Fl. Upper Ganget. Plain 3: 318. 1929; Steinberg in Komarov & Schischkin, Fl. U. S. S. R. 3: 495--496, pl. 27, fig. 3 a--d. 1935; Satake in Nakai, Icon. Pl. As. Orient. 2: 98. 1937; Mak., Illustr. Fl. Jap. 771 & E.26, fig. 2311. 1940; Erlandsson, Arkiv Bot. 30B (2): 2--4, fig. 1a & 1c. 1942; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1123, 1127, & 1333. 1956; Steinberg in Komarov & Schischkin, Fl. U. S. S. R., Engl. transl., 392--393. 1964; Moldenke, Phytologia 18: 169, 172--173, 180, 243, 244, 249, & 274. 1969.

Additional illustrations: Steinberg in Komarov & Schischkin,

Fl. U. S. S. R. 3: pl. 27, fig. 3 a--d. 1935; Mak., Illustr. Fl. Jap. fig. 2311. 1940; Erlandsson, Arkiv Bot. 30B (2): 2, fig. 1a & 1c. 1942.

The Maximowicz (1892) reference in the bibliography of this species is sometimes cited as "1893". The Erlandsson (1942) reference in the bibliography is often cited as "1940", but the pages in question were not actually issued until February 25, 1942. The chromosome count is given as $n = 16$, $2n = 32$.

Specht found this plant growing at the edge of a Melaleuca leucodendron lagoon, flowering and fruiting in May, and describes it as an "annual herb".

The E. D. Merrill 7748, distributed as E. cinereum, is actually E. nigriceps Merr., while Ishiba s.n. [Arahama, 24/10/1926] is E. robustius (Maxim.) Mak.

Additional citations: INDOCHINA: Annam: Clemens & Clemens 3652 (W—1427605). WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Island undetermined: Loher 6987 (W—713809). AUSTRALIAN REGION: AUSTRALIA: Northern Territory: Specht 409 (W—2316978).

ERIOCAULON COMPRESSUM Lam.

Additional synonymy: Eriocaulon gnaphalioides Michx. ex Spreng. in L., Syst. Veg., ed. 16, 3: 775. 1826. Eriocaulon gnaphaloides Michx. apud A. Wood, Class-book, ed. 2, pr. 1, 564. 1847.

Additional bibliography: Spreng. in L., Syst. Veg., ed. 16, 3: 775. 1826; A. Wood, Class-book, ed. 1, 405 (1845), ed. 2, pr. 1, 564 (1847), ed. 2, pr. 2, 564 (1848), ed. 10, pr. 1, 564 (1848), ed. 10, pr. 2, 564 (1849), ed. 10, pr. 3, 564 (1850), ed. 17, 564 (1851), ed. 23, 564 (1851), ed. 29, 564 (1853), ed. 35, 564 (1854), ed. 41, pr. 1, 564 (1855), and ed. 41, pr. 2, 564. 1856; A. Gray, Man. Bot., ed. 2, pr. 1, 489 (1856) and pr. 2, 489. 1858; Walp., Ann. 5: 928 & 929. 1858; A. Gray, Man. Bot., ed. 2, pr. 3, 489. 1859; A. Wood, Class-book, [ed. 42], pr. 1, 729. 1861; Walp., Ann. 6: 1170 & 1171. 1861; A. Gray, Man. Bot., ed. 3, 489 (1862) and ed. 4, pr. 1, 489. 1863; A. Wood, Class-book, [ed. 42], pr. 2, 729. 1863; A. Gray, Man. Bot., ed. 4, pr. 2, 489. 1864; A. Wood, Class-book, [ed. 42], pr. 3, 729 (1865) and pr. 4, 729. 1867; A. Gray, Man. Bot., ed. 5, pr. 1, 549—550 (1867) and ed. 5, pr. 2, 549—550. 1868; A. Wood, Class-book, [ed. 42], pr. 5, 729. 1868; A. Gray, Field For. & Gard. Bot., ed. 1, pr. 1, 352 (1868) and pr. 2, 352. 1869; A. Wood, Class-book, [ed. 42], pr. 6, 729 (1869) and pr. 7, 729. 1870; A. Gray, Man. Bot., ed. 4, pr. 3, 489. 1870; A. Wood, Am. Bot. & Flor., ed. 1, pr. 1, 355 (1870), pr. 2, 355 (1871), and pr. 3, 355. 1872; A. Wood, Class-book, [ed. 42], pr. 8, 729. 1872; A. Wood, Am. Bot. & Flor., ed. 1, pr. 4, 355 (1873) and pr. 5, 355. 1874; O. R. Willis, Cat. Pl. N. J. 67. 1874; A. Wood, Am. Bot. & Flor., ed. 1, pr. 6, 355. 1875; A. Wood, Class-book, [ed. 42], pr. 9, 729. 1876; A. Gray, Man. Bot., ed. 5, pr. 8, 549—550 (1878) and pr. "8" [=9], 549—550. 1880; A. Gray, Field For. & Gard. Bot., ed. 1, pr. 3, 352. 1880; A. Wood, Class-book, [ed. 42], pr. 10, 729. 1881; Hieron. in Engl. & Prantl, Nat.

Pflanzenfam., ed. 1, 2 (4): 24. 1888; O. R. Willis in A. Wood, Am. Bot. & Flor., ed. 2, 355. 1889; Wats. & Coult. in A. Gray, Man. Bot., ed. 6, pr. 1, 567 (1889) and pr. 2, 567. 1890; Keller & S. Br., Handb. Fl. Philad. 92. 1905; G. T. Stevens, Ill. Guide Flow. Pl. 114. 1910; W. Stone, Ann. Rep. N. J. State Mus. 1910: 323--325, pl. 64, fig. 2. 1912; Moldenke, Phytologia 18: 173--174, 267, & 268. 1969.

Additional illustrations: W. Stone, Ann. Rep. N. J. State Mus. 1910: pl. 64, fig. 2. 1912.

The Stone (1912) reference in the bibliography above is usually cited as "1911", but the work was not actually issued until January 26, 1912.

Another vernacular name recorded for this plant by Wood (1845) is "Gnaphalium-like pipewort".

The Bartram s.n. [Sept. 9, 1906], distributed as E. compressum, is actually E. pellucidum Michx.

ERIOCAULON MELANOCEPHALUM Kunth

Additional bibliography: Moldenke, Phytologia 18: 243 & 279--280. 1969.

Additional citations: CUBA: Pinar del Río: Killip 32380 (N, S). Province undetermined: C. Wright 3241a (S, S). VENEZUELA: Bolívar: Wurdack & Monachino 40912 (N). Guaricó: Tamayo 4600 (S). GUYANA: S. G. Harrison 1302 (K). FRENCH GUIANA: Collector undesignated 177, in part (N); Jelski s.n. [Cayenne] (B); Leprieur 149 (N); Leprieur & Sagot s.n. [Herb. Sagot 1330] (B, S, Ut--331). BRAZIL: Amapá: Black & Fröes 51-12273 (Be--70098). Minas Gerais: A. A. de Silveira s.n. [Herb. Magalhães Gomes 3933; Herb. Com. Geogr. & Geol. M. Gerais 2955; Herb. Jard. Bot. Belo Horiz. 26673] (N). Pará: Black, Ledoux, & Stegemann 52-14348 (Be--74076); Egler & Raimundo s.n. [Egler 1223; Herb. Mus. Goeldi 24270] (Bm); Murça Pires & Silva 4828 (N). Rio Branco: Ule 8088 [Herb. Mus. Goeldi 13173] (K, S, Z). São Paulo: Burchell 4208 (Br); Sellow 5850 (B-type, B--isotype), 5856 (B), s.n. [Brasília] (Br). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B); Mart., Fl. Bras. 3 (1): pl. 43 (B, B, B).

ERIOCAULON MELANOCEPHALUM var. LONGIPES Griseb.

Bibliography: Griseb., Cat. Pl. Cub. 226. 1866; Moldenke, N. Am. Fl. 19 (1): 33. 1937; Moldenke, Phytologia 1: 319. 1939; Moldenke, Known Geogr. Distrib. Erioc. 4 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 43 & 205. 1949; Moldenke, Résumé 51 & 481. 1959.

ERIOCAULON MELANOCEPHALUM subsp. USTERIANUM Beauverd

Synonymy: Eriocaulon usterianum Beauverd, Bull. Herb. Boiss., sér. 2, 8: 284. 1908.

Bibliography: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 284. 1908; Prain, Ind. Kew. Suppl. 4, pr. 1, 82 (1913) and pr. 2, 82.

1938; Moldenke, *Known Geogr. Distrib. Erioc.* 8, 37, & 41. 1946;
Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 77 & 205.
1949; Moldenke, *Résumé* 89, 293, & 481. 1959.

ERIOCAULON MELANOLEPIS Alv. Silv.

Synonymy: *Eriocaulon melanolepis* Alv. Silv., *Fl. Mont.* 1: pl. 6 ["IV"], sphalm. 1928.

Bibliography: Alv. Silv., *Arch. Mus. Nac. Rio Jan.* 23: 163. 1921; Alv. Silv., *Fl. Mont.* 1: 19—20 & 398, pl. 6 ["IV"]. 1928; A. W. Hill, *Ind. Kew. Suppl.* 7: 89. 1929; Moldenke, *Known Geogr. Distrib. Erioc.* 8 & 37. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 77 & 205. 1949; Moldenke, *Phytologia* 3: 332. 1950; Moldenke, *Résumé* 89 & 481. 1959; Renné, *Levant. Herb. Inst. Agron.* 69. 1960.

Illustrations: Alv. Silv., *Fl. Mont.* 1: pl. 6 ["IV"]. 1928.
Silveira (1928) cites A. Silveira 500 from Minas Gerais.

ERIOCAULON MERRILLII Ruhl.

Synonymy: *Eriocaulon sollyanum* var. *sumatranum* Van Royen ex Moldenke, *Résumé Suppl.* 15: 20, in syn. 1967.

Bibliography: J. R. Perkins, *Fragm. Fl. Philipp.* 1: 136. 1904; Prain, *Ind. Kew. Suppl.* 3: 69. 1908; Hayata, *Icon. Pl. Formos.* 3: 197. 1913; S. Sasaki, *List Pl. Formos.* 99. 1928; Satake, *Bull. Tokyo Sci. Mus.* 4: [Rev. Jap. Erioc.] 64. 1940; Moldenke, *Known Geogr. Distrib. Erioc.* 27 & 37. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 141 & 205. 1949; Moldenke, *Phytologia* 3: 332—333. 1950; Moldenke, *Résumé* 176, 184, & 481. 1959; Moldenke, *Résumé Suppl.* 15: 12 & 20. 1967; Moldenke, *Phytologia* 17: 461 (1968) and 18: 186. 1969.

The type of this species was collected by Elmer Drew Merrill (no. 572) — in whose honor it was named — on mossy rocky in the bed of a small stream on Culión, Philippine Islands, in December, 1902, and is deposited in the herbarium of the Botanisches Museum at Berlin. The type of *E. sollyanum* var. *sumatranum* appears to be H. H. Bartlett 7457 from Sumatra, although I have not seen the original description of this variety, if, indeed, any has ever been published, and such an original description might designate another type. It is to be regretted that there isn't a worldwide index to subspecific names as there is for specific names in the phanerogams.

Eriocaulon merrillii is said to be related to *E. redactum* Ruhl. A common name recorded for it is "ruzon-hosikusa". Elmer says of it: "solitary mud plants forming colonies upon stream beds of rocks overlaid with fine mud or wet earth at 750 feet; roots soft, whitish; leaves in dense rosettes, ascendingly recurved, soft and succulent, whitish toward the base, otherwise pale green; inflorescence stalks erect or ascending, green, terete, strict, very unequal in length, several, at the base subtended by a green bract; heads chaffy brown, flattened, April." It has also been collected in flower and fruit in June.

Material has been misidentified and distributed in herbaria as E. hookerianum Stapf, E. sexangulare L., and E. truncatum Hamilt. On the other hand, the M. Ramos s.n. [Herb. Philip. Bur. Sci. 1831], distributed as E. merrillii, is actually E. alatum H. Lecomte, while E. D. Merrill 293 is E. cinereum R. Br. and M. S. Clemens 18023 is E. truncatum Hamilt.

Additional citations: WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Culi6n: E. D. Merrill 572 (B--type, N--isotype). Luzon: Elmer 6617 (W--853649); Loher 12947 (Ca--242827). Sibuyan: Elmer 12248 (B1, N, Ut--27543). INDONESIA: GREATER SUNDA ISLANDS: Sumatra: H. H. Bartlett 7457 (Mi).

ERIOCAULON MESANTHEMOIDES Ruhl.

Bibliography: Ruhl. in Engl., Bot. Jahrb. 27: 79. 1899; Ruhl. in Engl., Pflanzenreich 13 (4-30): 62, 76, & 286. 1903; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 70. 1904; Moldenke, Known Geogr. Distrib. Erioc. 21 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 117, 120, & 205. 1949; Moldenke, Phytologia 3: 333. 1950; Moldenke, Résumé 144, 149, & 481. 1959.

This species is based on Stuhlmann 9143 from Tanganyika, deposited in the herbarium of the Botanisches Museum at Berlin; the type sheet was previously identified as E. schimperii Körn. and as Mesanthemum radicans (Benth.) Körn. The Goetze 293, cited below, is a mixture with E. volkensii Engl.

Additional citations: TANGANYIKA: Goetze 293, in part (B), 1235 (B, Z); Schlieben 1135a (W--2214315); Stuhlmann 9143 (B--type). MALAWI: Stolz 2098 (B, S, Ut--64652).

ERIOCAULON MEXICANUM Moldenke

Bibliography: Moldenke, N. Am. Fl. 19 (1): 19 & 33. 1937; Moldenke, Phytologia 1: 319--320. 1939; Moldenke, Known Geogr. Distrib. Erioc. 4 & 37. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 86. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 30 & 205. 1949; Moldenke, Phytologia 3: 333. 1950; Moldenke, Résumé 35 & 481. 1959; L. O. Williams, Fieldiana Bot. 31: 256. 1967.

Williams (1967) avers that this taxon is closely related to the recently described E. molinae L. O. Williams.

ERIOCAULON MICROCEPHALUM H.B.K.

Synonymy: Eriocaulon microcephalum Humb. & Bonpl. apud Roem. & Schult. in L., Syst. Veg., ed. 15 nova, 2: 865. 1817 [not E. microcephalum Cham. & Schlecht., 1893, nor Hook. & Arn., 1854, nor Sellow, 1959]. Eriocaulon microcephalum Kunth apud Spreng. in L., Syst. Veg., ed. 16, 3: 775, in syn. 1826. Eriocaulon microcephalum Humb. & Kunth ex Kunth, Enum. Pl. 3: 572. 1841. Eriocaulon pusillum Willd. ex Kunth, Enum. Pl. 3: 548, in syn. 1841 [not E. pusillum Bong., 1831, nor R. Br., 1810, nor Poepp., 1863]. Eriocaulon brachypus Van Heurck & Muell.-Arg. in Van Heurck, Obs. Bot.

96. 1870 [not E. brachypus Bong., 1831]. Eriocaulon microcephalum H.B.K. ex Moldenke, Résumé 290, in syn. 1959. Eriocaulon microcephalum H.B.K. ex Straka, Erdkunde 14: 61, sphalm. 1960. Paepalanthus villosus (H.B.K.) Kunth, in herb.

Bibliography: Breyn., Exot. Min. Cog. Pl. Cent. 1: 108—109, pl. 50. 1678; Moris., Pl. Hist. Univ. 3: 259—260, sect. 8, pl. 16, fig. 17. 1699; L., Sp. Pl., ed. 2, 128. 1762; H.B.K., Nov. Gen. & Sp. Pl., ed. quarto, 1: 253 (1816) and ed. folio, 1: 201—202. 1816; Roem. & Schult. in L., Syst. Veg., ed. 15 nova, 2: 865. 1817; Spreng. in L., Syst. Veg., ed. 16, 3: 775. 1826; Roem. & Schult., Mant. 3: 671. 1827; Cham. & Schlecht., Linnaea 6: 43. 1831; Kunth, Enum. Pl. 3: 548. 1841; Walp., Ann. 5: 930 (1858) and 6: 1171. 1861; Körn. in Mart., Fl. Bras. 3 (1): 492. 1863; Van Haurck, Obs. Bot. 96. 1870; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 27. 1888; Morong, Bull. Torr. Bot. Club 18: 356—357. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 877—879. 1893; Barnhart, Bull. Torr. Bot. Club 29: 585—598. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 42, 53, & 285—287. 1903; H. B. Davis, Life & Works Pringle 105. 1936; Moldenke, N. Am. Fl. 19 (1): 20 & 34—35. 1937; Moldenke, Phytologia 1: 316 & 320. 1939; Moldenke, Known Geogr. Distrib. Erioc. 3, 4, 7, 37, & 39. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 877—879. 1946; Moldenke, Phytologia 2: 134. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 27, 30, 39, 69, 72, & 205. 1949; Moldenke, Phytologia 3: 333—334. 1950; Moldenke, Mem. N. Y. Bot. Gard. 9: 175. 1955; Moldenke, Résumé 32, 36, 46, 79, 83, 286, 290, 291, & 481. 1959; Moldenke, Résumé Suppl. 1: 17. 1959; Straka, Erdkunde 14: 61 & 63. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877—879. 1960; Moldenke, Résumé Suppl. 3: 9 & 32 (1962), 5: 5 (1962), 6: 5 & 6 (1963), and 8: 2. 1964; Shinners, Sida 2: 441. 1966; Kral, Sida 2: 312—315 & 330. 1966; Faden, Idrobo, Jiminez, & Tomlinson, Common Dist. Int. Pl. Cerro Muerte 2. 1966; Moldenke, Résumé Suppl. 17: 10. 1968.

Illustrations: Kral, Sida 2: 313. 1966.

It should perhaps be noted here that the E. microcephalum attributed to Chamisso & Schlechtendal (but actually published by them as "Eriocaulon species. An microcephalum HBK.") and referred to in the synonymy above, is actually a synonym of E. schiedeanum Körn., while the homonym attributed to Hooker & Arnott is actually E. ehrenbergianum Klotzsch and that credited to Sellow is Paepalanthus tortilis (Bong.) Mart.; the E. brachypus of Bongard is a synonym of Paepalanthus brachypus (Bong.) Kunth; and the E. pusillum of Robert Brown is a valid species, but the homonym attributed to Bongard is Syngonanthus minutulus (Steud.) Moldenke and that credited to Poeppig is Paepalanthus perpusillus Kunth.

The original H.B.K. reference for E. microcephalum is incorrectly dated "1815" by Morong (1891). The specific epithet sometimes is written with a capital initial letter for no valid reason.

Sprengel (1826) regarded E. microcephalum H.B.K. as a synonym of E. triangulare L., now usually listed as Paepalanthus triangularis (L.) Körn. In this connection, therefore, it is important to consult Linnaeus' original description (1762) of his E. triangulare. It reads as follows: "ERIOCAULON culmo triangulari, foliis ensiformibus, capitulo ovato. Plantaginella aurea alopecuroides brasiliana, foliis gramineis Breyn. Cent. pl. 50; Moris. hist. 3: 259, s. 8, t. 16, f. 17. Habitat in Brasilia. Flosculus non potui perspicere in Herb. Pisonis apud Burmannum." Reichard (1779) repeats Linnaeus' description and comments. Sprengel (1826) adds "Quito", apparently based on a specimen to which he mistakenly applied Linnaeus' name (and one which could very possibly have been E. microcephalum). Ruhland (1903) ignores Sprengel's disposition and places E. triangulare -- as Paepalanthus triangularis -- in his Species dubiae with the comment "Folia ensiformia; pedunculus triangularis; capitulum ovatum. Brasilien. Nota: Planta omnino dubia. Dubium etiam, utrum species (potius) ad genus Paepalanthum an ad Eriocaulum an aliud genus pertineat."

Linnaeus' name is obviously based on and typified by the Plantaginella aurea alopecuroides brasiliana, foliis gramineis of Breyn (1678). The original description of this taxon by Breyn reads as follows: "Plantaginella aurea alopecuroides Brasiliana, foliis gramineis. En ex minimis unam, sed rarissimis charissimisq; nostris plantulis. Radix ejus exigua, mille fibris niveis comata, Foliola multa graminea & angusta Graminis Luzulae minoris Johanni Bauhino, sed omnino glabra, in orbem diffundens: ex quorum gremio, coliculi quinquaginta vel plures prosiliunt, tenuissimi, plantae exilitatem Globulis oblongiusculis lanuginosisque, Plantaginis angustifoliae paniculis Lagopi minoribus, uberrime compensates, singuli, singulis coliculis triuncialibus vel brevioribus insidentes, compositi ex pilis lenissimis leucophaei coloris, inter quos Flosculi flavi perminuti, summa amoenitate, veluti punctula aurea, emicant, quod jucundissimum, huic plantulae in Brasiliâ vigenti, aspectum conciliat."

Morison (1699) repeats this description almost verbatim: "Plantaginella aurea alopecuroides Brasiliana foliis gramineis, Breyn. Cent. 1. Radix ei exigua, mille fibris niveis comata, foliola multa, graminea & angusta, Graminis Luzulae minoris, J. B. sed omnino glabra, in orbem diffundens. Ex horum autem gremio coliculi quinquaginta vel plures prosiliunt, tenuissimi, plantae exilitatem globulis oblongiusculis lanuginosisque Plantaginis angustifoliae paniculis Lagopi minoribus uberrime compensantes, singuli singulis coliculis triuncialibus vel brevioribus insidentes, compositi ex pilis lenissimis, leucophaei coloris, inter quos flosculi flavi, perminuti, summa amoenitate, veluti punctula aurea emicant. Atque hi jucundissimum huic plantulae in Brasilia vigenti aspectum conciliant."

A glance at the illustration given by Breyn and repeated by Morison shows without any doubt that this taxon has nothing what-

ever to do with Eriocaulon microcephalum, although what evidence there is for removing it from the genus Eriocaulon, where Linnaeus placed it, and shifting it to Paepalanthus, I cannot see. The illustration appears good and the plant ought to be recognizable among the Brazilian members of this family.

Eriocaulon brachypus of Van Heurck & Müller was based on a Peruvian collection.

Eriocaulon microcephalum is an alpine species found in scattered localities from Kern County, California, through the states of México, Puebla, Tamaulipas, Hidalgo, Veracruz, and the Federal District of Mexico, and from the department of San José, Costa Rica to Azuay, Carchi, Loja, and Pichincha, Ecuador, and Cajamarca, Cuzco, and Junín, Peru. Recent collectors describe it as a "tiny herb", the flowers white, gray, or blackish with white woolly hairs, the sepals gray, and the anthers black. It has been found growing in gravelly spongy soil, on paramos, on mosses in moist areas, in wet meadows, open meadows in fir woods, or grassy bogs, in pine woods and sphagnum bogs, and among grasses and sedges of seeps, at altitudes of 2100 to 4050 meters, flowering and fruiting from November to February as well as from May to September. Fosberg, in Ecuador, found it in a "raised bog in pasture, quaking in spots, peaty but without sphagnum, dominant in quaking places, forming a mat on the surface of the water or thin mud". In Peru it was found by Woytkowski growing "in clumps in boggy meadows with low vegetation", while Cazalet & Pennington describe it in Ecuador as "small cushion-forming herbs, leaves fleshy edged with white wool at base and apex, bracts tipped with long hairs, in bogs in paramillos". Rzedowski describes the plant as "pequeña, cabezuelas blanco-moradas, en lugares encharcados". It greatly resembles E. paradoxum Moldenke in habit, but differs in technical characters of the head and florets.

In regard to the California record, Kral (1966) says: "I have seen only one specimen from the United States. This, collected by L. J. Xantus de Vesey in 1857--58 in the vicinity of Fort Ticon (now called 'Tejon') in what is presently Kern County, California, differs in no evident way from material from far to the south in America. I visited the area during the summer of 1964 in hopes of finding this population but a search of the marshy ground about springs in that area was fruitless. The station may well have been destroyed, since the Fort has become considerable of a tourist attraction and much of the stream which used to provide water for the soldiers at the old fort has been 'landscaped'. The most characteristic features of the plants which I have examined appear to be the densely caespitose habit, the stubby, rigid, ascending and imbricate leaves whose bases are partly concealed by ramentum, and the spathe-like character of the male sepals." Morong (1891) notes "This species has found its way from Jalisco, Mexico, where it is common, to Fort Tejon, California, at which place it was collected by Xantus in the expedition of 1857--8, although it is not enumerated in Dr. Gray's list of Xantus' plants. I find specimens of it without a name

in the Torrey Herbarium."

Material has been misidentified and distributed in herbaria as Luzula sp., in the Juncaceae. On the other hand, the Barclay & Juajibioy 9374 and the Holm & Iltis 460, distributed as Eriocaulon microcephalum, are actually Paepalanthus karstenii Ruhl., while Barclay & Juajibioy 6402 & 6450 are something in the Caryophyllaceae or Alsinaceae.

Additional & emended citations: MEXICO: Federal District: Balls B.5041 (Ca--684129); J. Rzedowski 20389 (Ip, Mi, W--2471533), 25710 (Ip). Hidalgo: H. E. Moore Jr. 2800 (Ca--919380), 3334 (Ca--919381). México: Pringle 6144 (Ca--115171, Mm--7958, Ms--15478, S), 7361 (Dt, Mi, S), 13228 (Gg--423411). Veracruz: Balls B.5495 (Ca--684390). COSTA RICA: San José: Standley & Valerio 43637 (F--599294), 43830 (F--716227). COLOMBIA: Magdalena: Cuatrecasas & Castaneda 25027 (Fg). Nariño: André 3484 (N). ECUADOR: Azuay: Barclay & Juajibioy 8361 (N); Harling 1799 (S). Carchi: C. F. Lehmann 567 (B, W--933494). Imbabura: Cazalet & Pennington 5452 (N, W--2405887). Loja: André K.1737 (N); Humboldt s.n. [Loxa] (B--isotype, B--isotype). Napo-Pastaza: Barclay & Juajibioy 8975 (N). Pichincha: F. R. Fosberg 22447 (N). Tunguragua: Asplund 9958 (S); D. H. Knight 273 (Ws). PERU: Cuzco: Vargas C. 13330 (Z). Huanuco: Woytkowski 34117 (Ca--14250, S). MOUNTED ILLUSTRATIONS: drawings & notes by Körnigke (B).

ERIOCAULON MIKAWANUM Satake & Koyama

Synonymy: Eriocaulon mikawana Satake & Koyama ex Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 180 & 181, fig. 123 (5). 1964.

Bibliography: Satake & Koyama, Journ. Jap. Bot. 30: 114--116. 1955; G. Taylor, Ind. Kew. Suppl. 12: 55. 1959; Moldenke, Résumé 173 & 481. 1959; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 180, 181, & 429, fig. 123 (5). 1964; Moldenke, Résumé Suppl. 12: 9. 1965.

Illustrations: Satake & Koyama, Journ. Jap. Bot. 30: 115. 1955; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 180, fig. 123 (5). 1964.

The type of this species was collected by Jisaburo Ohwi and Tetsuo Koyama (no. 12118) scattered in very swampy peat areas with Holoeion sedges and rushes, abundant locally, at the village of Tsukuté, in the province of Mikawa, Honshu, Japan, on October 15, 1954, and is deposited in the herbarium of the National Science Museum at Tokyo. Satake & Koyama (1955) say "Haec planta E. monococcon affinis tamen diversissima bracteis multo brevioribus florem sesqui superantibus paullo latioribus, petalis quam calyx conspicue longioribus, receptaculo piloso". They also record the vernacular name "Mikawa-imunohige". They distinguish the two species as follows:

"Ecailles de l'involucre de 7--8 mm de long, linéaires; pétales

aussi longs que les sépales; réceptacle glabre; plante gracile...
E. monococcon.

Ecaillés de l'involucre de 3--5 mm de long., lancéolées ou oblongues; pétales; Plus longs que les sépales; réceptacle longuement chevelu; plante comparativement robuste....E. mikawanum.

The species has been collected at 600 meters altitude, flowering and fruiting in October.

Citations: WESTERN PACIFIC ISLANDS: JAPAN: Honshu: Koyama s.n. [17 October 1955] (Ss); Ohwi & Koyama 12118 (Z--isotype).

ERIOCAULON MILHOENSE Herzog

Synonymy: Eriocaulon milhoense Herzog apud A. W. Hill, Ind. Kew. Suppl. 9: 105. 1938.

Bibliography: Herzog in Fedde, Repert. Spec. Nov. 29: 204--205. 1931; A. W. Hill, Ind. Kew. Suppl. 9: 105. 1938; Moldenke, Known Geogr. Distrib. Erioc. 8 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 177 & 205. 1949; Moldenke, Résumé 89 & 481. 1959.

The type of this species was collected by Freiherr Philipp von Luetzelburg (no. 2153b) in Pará, Brazil, and is deposited in the herbarium of the Botanische Staatssammlung at Munich, where it was photographed by Macbride as his type photograph number 18689.

Citations: BRAZIL: Pará: Luetzelburg 2153b [Macbride photos 18689] (N--photo of type, N--photo of type, W--photo of type).

ERIOCAULON MINIMUM Lam.

Synonymy: Eriocaulon sexangulare Burm. f. ex Spreng. in L., Syst. Veg., ed. 16, 3: 776, in syn. 1826 [not E. sexangulare Auct., 1903, nor Fyson, 1959, nor Heyne, 1832, nor L., 1753, nor Mart., 1893, nor Willd., 1841]. Eriocaulon trimeni Hook. f. in Trimen, Handb. Fl. Ceylon 5: 2, 8, & 412. 1900. Eriocaulon trimeni Hook. f. apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 117 & 287. 1903.

Bibliography: Lam., Tabl. Encycl. 1: 213. 1791; Spreng. in L., Syst. Veg., ed. 16, 3: 776. 1826; Roem. & Schult., Mant. 3: 671. 1827; Walp., Ann. 5: 937 (1858) and 6: 1171. 1861; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878. 1893; Hook. f., Fl. Brit. Ind. 6: 585. 1893; Hook. f. in Trimen, Handb. Fl. Ceylon 5: 2, 8, & 412. 1900; Ruhl. in Engl., Pflanzenreich 13 (4-30): 103, 108, 117, 286, & 287. 1903; Thiseit.-Dyer, Ind. Kew. Suppl. 2: 70. 1904; H. Lecomte, Journ. de Bot. 21: 108. 1908; Fyson, Journ. Indian Bot. 2: 199 (1921) and 3: 17. 1922; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878. 1946; Moldenke, Known Geogr. Distrib. Erioc. 23, 24, 37, & 41. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 125, 126, 130, & 205. 1949; Moldenke, Résumé 159, 162, 167, 293, & 481. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878. 1960; Moldenke, Résumé Suppl. 17: 11. 1968; Moldenke, Phytologia 17: 461. 1969.

It should be noted here that the E. sexangulare L., referred to in the synonymy above, is a valid species, while the homonyms

accredited to "Auct." and to Martius are synonyms of E. cinereum R. Br., that accredited to Heyne is E. wightianum Mart., and those credited to Fyson and to Willdenow are E. willdenovianum Moldenke.

Fyson (1921), using the name E. trimeni Hook. f. for this taxon, says "(Bambulla Rk. 1881 in Herb. Ceylon!)....Ruhl. p. 117, 'incognita'. Scapes $1/2$ — 2 in. leaves $1/3$ — $1/4$ in. narrow to linear. Heads $1/10$ — $1/8$ in. Involucral bracts hyaline, as long or slightly longer than the floral, sub-erect. Floral bracts cuneately oblong or obovate. Receptacle glabrous. Male flowers, sepals 3, but 2 connate; sta 6 (not 1). Female flowers, normal; seeds glistening yellow, smooth. Ceylon. Hooker l.c. compared this with E. Sieboldianum, but the black anthers and flatter head sufficiently distinguish it. Hooker also in error described the male flowers as having only one stamen. There are 6 quite clearly in the plant quoted above. It was referred to E. truncatum Ham. by Trimen, and though differing in its flower and in the involucre being less horizontal is clearly allied to that species." A vernacular name in French for it is "joncinelle naine".

The Macé s.n. [Coromandel] distributed as E. minimum is actually E. cinereum R. Br.

ERIOCAULON MINUSCULUM Moldenke

Bibliography: Moldenke, *Phytologia* 8: 159—160. 1962; Moldenke, *Résumé Suppl.* 3: 17. 1962; Hocking, *Excerpt. Bot. A.* 6: 455. 1963.

Citations: CHINA: Sikang: H. Smith 12123 (S—type, Z—isotype).

ERIOCAULON MINUTISSIMUM Ruhl.

Bibliography: Ruhl. in Fedde, *Repert. Spec. Nov.* 22: 32. 1925; A. W. Hill, *Ind. Kew. Suppl.* 7: 89. 1929; Moldenke, *N. Am. Fl.* 19 (1): 19 & 25. 1937; Moldenke, *Phytologia* 1: 320. 1939; León, *Fl. Cuba* 1: 280. 1946; Moldenke, *Known Geogr. Distrib. Erioc.* 4 & 37. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 43 & 205. 1949; Moldenke, *Résumé* 51 & 481. 1959.

Additional citations: CUBA: Pinar del Río: Ekman 17948 (S—type).

ERIOCAULON MINUTUM Hook. f.

Bibliography: Hook. f., *Fl. Brit. Ind.* 6: 579—580. 1893; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 158. 1902; Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 103, 111, & 286. 1903; Fyson, *Journ. Indian Bot.* 2: 313 & 317, pl. 36. 1921; C. E. C. Fischer in Gamble, *Fl. Presid. Madras*, ed. 1, 9: 1613 & 1619. 1931; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 2, 158. 1941; Razi, *Journ. Mysore Univ.* 7 (4): 77. 1946; Moldenke, *Known Geogr. Distrib. Erioc.* 23 & 37. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 126 & 205. 1949; Moldenke, *Phytologia* 3: 334. 1950; C. E. C. Fischer in Gamble, *Fl. Presid. Madras*, ed. repr. 2, 8 [3]: 1124, 1127, & 1333. 1956; Bourdu, *Bull. Soc. Bot. France* 104: 156. 1957; Moldenke, *Résumé* 159, 162, & 482. 1959; Durand & Jacks., *Ind. Kew. Suppl.*

1, pr. 3, 158. 1959; Thanikaimoni, Pollen & Spores 7: 185. 1965; Moldenke, Phytologia 18: 60. 1968.

Illustrations: Fyson, Journ. Indian Bot. 2: pl. 36. 1921.

Fyson (1921) describes this plant as follows: "Whole plant very small. Leaves linear $1\frac{1}{2}$ -- $3\frac{1}{4}$ in. long, from a broad 3--5 nerved base. Scapes numerous, very slender, $1\frac{1}{2}$ -- $2\frac{1}{2}$ in. Heads obconic, the involucre bracts $1\frac{1}{8}$ in. long - glabrous, scarious, elliptic-acute and covering the floral. Floral bracts oblong, acute. Female sepals 2 only, narrow, with a pectinate crest along the upper half of the back; petals 0. Male flowers normal, petals small. Seeds oblong elliptic, reddish brown. Plate 36. Rajputana: Mt. Abu: Peninsular India; Mysore and Kanara on the Western Ghats. This species might be mistaken for a small and meagre form of E. xeranthemum."

The species has been collected in flower and fruit in September. It has also been recorded from West Bengal. The Cheluviah 56, distributed as E. minutum, is actually E. ritchieanum Ruhl., while Santapau 2928 is E. xeranthemum Mart.

Citations: INDIA: Bombay: R. R. Fernandez R.1964 (Xa); Patel 7 (Z). Kerala: Law s.n. [Concan] (B--cotype, Z--cotype).

ERIOCAULON MIQUELIANUM Körn.

Synonymy: Eriocaulon miquelianum Koeck. apud Tu, Chinese Bot. Dict., abrdgd. ed., 245. 1933 [not E. miquelianum Auct. Jap., 1940, nor Miyabe & Kudo, 1940, nor Miyabe & Tatew., 1940, nor Mori, 1940].

Bibliography: Körn. in Miq., Ann. Mus. Bot. Lugd. 3: 162--163. 1867; Franch. & Savat., Enum. Pl. Jap. 2: 99. 1879; Maxim., Diagn. Pl. Nov. Asiat. 8: 17. 1892; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878. 1893; Mak., Bot. Mag. Tokyo 8: 506. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30): 12, 13, 65, 92, & 286, fig. 10. 1903; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 200. 1903; Matsumura, Ind. Pl. Jap. 2 (1): 176. 1905; Mak. & Nemoto, Fl. Jap., ed. 1, 1305. 1925; Ruhl., Notizbl. Bot. Gart. Berlin 10: 1043. 1930; Mak. & Nemoto, Fl. Jap., ed. 2, 1512. 1931; Tu, Chinese Bot. Dict., abrdgd. ed., 245. 1933; Nemoto, Suppl. Fl. Jap. 1039. 1936; Satake, Bot. Mag. Tokyo 51: 288 [Shib. Comm. Art. 17: 106]. 1937; Honda, Nom. Pl. Jap. 462. 1939; Satake, Journ. Jap. Bot. 15: 629. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 1, 9, 11, 13, 26, 40, 49, 50, 57--60, 77, 80, & 87, fig. 5 (c). 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 46--49. 1940; Mak., Illustr. Fl. Jap. 771 & E.26, fig. 2312. 1940; Moldenke, Known Geogr. Distrib. Erioc. 25 & 37. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Moldenke, Phytologia 3: 334. 1950; Moldenke, Résumé 173, 290, & 482. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878. 1960; Moldenke, Résumé Suppl. 3: 18 & 21. 1962; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 180, 182, & 429, fig. 123 (7). 1964; Moldenke, Résumé Suppl. 12: 9. 1965; Thanikaimoni, Pollen & Spores 7: 182 & 183,

tab. 1. 1965.

Material of this puzzling species has been collected in flower and fruit from July to October, and the vernacular names "imunohige" and "imuno-hige" have been recorded for it.

The E. miquelianum accredited to "Auct. Jap.", as well as the homonyms credited to Miyabe & Kudo and to Miyabe & Tatewaki, are synonyms of E. hondoense Satake, but that credited to Mori is E. tenuissimum Nakai.

Material has been misidentified and distributed in herbaria under the names E. hondoense Satake, E. shikokianum Maxim., and E. sikokianum Maxim. On the other hand, the Collector undesignated s.n. [Ugo, 12-7-1905], Furuse s.n. [Gyoonin-bara, 27 Sept. 1955], Hashimoto 399, Y. Matsumura 6676, Maximowicz s.n. [Hakodate, 1861], Ohwi s.n. [26.X.1930], and Togasi 722, 914, & 1101, distributed as E. miquelianum, all appear to be better placed under E. hondoense Satake, while Uyezuki s.n. [Sept. 5, 1912] is E. robustius (Maxim.) Mak.

Satake (1940) cites the following Japanese collections: Honshu: Andô 17; Araki s.n. [Aug. 1931]; Arimoto s.n. [Aug. 1903]; Collector undetermined 20 & 23740; Faurie 6, 1869, 1872, 2727, & 13809; Hasimoto 57462, s.n. [Sept. 1928], & s.n. [Oct. 1930]; Hori s.n. [Sept. 1934]; Inagaki 7437 & 8988; Itô s.n. [Sept. 1891]; Iwabuti 5365; Katô 83033 & 83034; Kinashi 39; Koidzumi 107, 108, 10558, 13283, 44941, 52348, & 53571; Nikai 49452; Otaya 72; Simizu 29; Sugimoto 23813 & 272261; Suzuki s.n. [Sept. 1931]; Takahashi 139 & 140; Takeuti s.n. [Sept. 1932]; Tamaki 35 & s.n. [Oct. 1926]; Tiba s.n. [Sept. 1911]; Watanabe s.n. [Oct. 1893]; Yosino 9. Kiushu: Collector undetermined s.n. [Mai 1920]; Greatrex 207/38 & s.n. [Dec. 1919]; Hara s.n.; Masamune s.n.; Mayebar 11, 362, & 363; Miyauti 8; Nakasima 41; Saida 3591; Sugino 19; Tasiro 43766, in part, s.n. [Sept. 1921], & s.n. [Oct. 1924]; Yokoo 57461. Sikoku: Faurie 11639; Oti 2, 7, & 8; Yamasita s.n. [Oct. 1930].

Citations: WESTERN PACIFIC ISLANDS: JAPAN: Honshu: Furuse 17884 (Z), s.n. [27 Sept. 1955] (S), s.n. [Sara-numa, 6 Oct. 1955] (S), s.n. [22 Sept. 1957] (S), & s.n. [25 Sept. 1960] (S); Koyama 7113 (Mg). Sikoku: Wawra 1467 (B).

ERIOCAULON MIQUELIANUM var. ATROSEPALUM Satake

Bibliography: Satake, Journ. Jap. Bot. 15: 629. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 13, 58, & 87. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 48--49. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Moldenke, Résumé 173 & 482. 1959; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 182 & 429. 1964.

This variety is based on a specimen collected by M. Katô (no. 4281) at Takayu, in Uzen province, Honshu, Japan, in September,

1931, and deposited in the herbarium of Kyoto Imperial University. The variety is said to be endemic and no other collections have been cited to date. Its vernacular name is "takayu-imunohige". Satake (1940) says of it "Resembles Eriocaulon Miquelianum and E. atrum, but differs from the former in having blackish olivaceous sepals and a hairy receptacle, and from the latter in having lanceolate involucres longer than the flowers and the acute lobes of the calyx."

ERIOCAULON MIQUELIANUM var. **INVOLUCRATUM** Nakai

Synonymy: Eriocaulon miquelianum f. involucratum (Nakai) Murata ex Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 182. 1964.

Bibliography: Nakai, Bot. Mag. Tokyo 24: 6. 1910; Mak. & Nemoto, Fl. Jap., ed. 1, 1306 (1925) and ed. 2, 1512. 1931; Nemoto, Suppl. Fl. Jap. 1039. 1936; Honda, Nom. Pl. Jap. 462. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 13, 58, & 87. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 48. 1940; Moldenke, Known Geogr. Distrib. Erioc. 25 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Moldenke, Résumé 173 & 482. 1959; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 182 & 429. 1964; Moldenke, Résumé Suppl. 12: 9. 1965.

Satake (1940) says of this taxon: "A typo differt bracteis involucrantibus lanceolato-lineari-subulatis capitulo triplo longioribus". The type was collected by N. Kinasi (no. 89) at Aomori. in Mutu province, Honshu, Japan, in September, 1899. The only known vernacular name recorded for the taxon is "Mutu-inunohige". Satake (1940) cites also Toba 382 from Honshu and comments that the variety is endemic there.

ERIOCAULON MISERRIMUM Ruhl.

Bibliography: Ruhl. in Fedde, Repert. Spec. Nov. 22: 30. 1925; A. W. Hill, Ind. Kew. Suppl. 7: 89. 1929; Moldenke, N. Am. Fl. 19 (1): 19 & 29. 1937; Moldenke, Phytologia 1: 320. 1939; León, Fl. Cuba 1: 280. 1946; Moldenke, Known Geogr. Distrib. Erioc. 4 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 45 & 205. 1949; Moldenke, Phytologia 3: 334. 1950; Moldenke, Résumé 53 & 482. 1959.

Additional citations: ISLA DE PINOS: Ekman 11956 (N--photo of type, S--type, Z--photo of type).

ERIOCAULON MISERUM Körn.

Synonymy: Eriocaulon cristatum Mart. ex Körn., Linnaea 27: 607. 1856 [not E. cristatum Heyen, 1959, nor Mart. in Wall., 1832].

Bibliography: Wall., Numer. List 208 ["207"]. 1832; Körn., Linnaea 27: 607. 1856; Walp., Ann. 5: 932 (1858) and 6: 1171. 1861; Hook. f., Fl. Brit. Ind. 6: 575. 1893; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878. 1893; Ruhl. in Engl., Pflanzenreich 13 (4-30): 61, 68, & 286. 1903; Fyson, Journ. Indian Bot. 3:

13--15, pl. 47. 1922; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878. 1946; Moldenke, Known Geogr. Distrib. Erioc. 23 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 126 & 205. 1949; Moldenke, Phytologia 3: 334. 1950; Moldenke, Résumé 162 & 482. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878. 1960; Thanikaimoni, Pollen & Spores 7: 185. 1965; Moldenke, Résumé Suppl. 17: 9. 1968; Moldenke, Phytologia 17: 496. 1969. Illustrations: Fyson, Journ. Indian Bot. 3: pl. 47. 1922.

Jackson (1893), following Hooker (1893), lists an "E. cristatum Mart. ex Körn., Linnaea 27: 607" as a synonym of E. miserum, since Wallich 6070 is in part the actual type collection of the latter taxon. These authors maintain the E. cristatum Mart. "in Wall." (1832) is a valid species quite distinct from E. miserum. The E. cristatum Heyne, referred to in the synonymy above, is a synonym of the true E. cristatum Mart. (1832). Unfortunately Jackson misdated the Körnicke reference for E. miserum and for E. cristatum as "1854".

Eriocaulon miserum has been widely cited as a native only of India, but since the type collection was made by Henry Bruce in "Silhet", it must be included also in the flora of Pakistan, inasmuch as that locality is now in what is known as East Pakistan. Clarke collected it in "Khasia", an area which seems still to be included politically in India.

Additional & emended citations: PAKISTAN: East Bengal: H. Bruce s.n. [Wallich 6070, in part] (B--type). INDIA: Khasi states: C. B. Clarke 42963 (F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON MISSIONUM Castell.

Bibliography: Castell. in Descole, Gen. Sp. Pl. Argent. 3: 81, 88--90, & [103], pl. 18, fig. A. 1945; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 103 & 205. 1949; Moldenke, Phytologia 3: 334. 1950; E. J. Salisb., Ind. Kew. Suppl. 11: 88. 1953; Moldenke, Résumé 123 & 482. 1959.

Illustrations: Castell. in Descole, Gen. Sp. Pl. Argent. 3: pl. 18, fig. A. 1945.

This species has been collected on the campos, flowering and fruiting in December and January.

Citations: ARGENTINA: Misiones: Ekman 1225 (S), 1909 (E--1577142, Mi, N, N, S). MOUNTED ILLUSTRATIONS: Castell. in Descole, Gen. Sp. Pl. Argent. 3: pl. 18, fig. A (N, Z).

ERIOCAULON MITOPHYLLUM Hook. f.

Synonymy: Eriocaulon mitophyllum Hook. f. ex Ruhl. in Engl., Pflanzenreich 13 (4-30): 60, 67, & 286. 1903. Eriocaulon miserum var. mitophyllum Hook. f. ex Fyson, Journ. Indian Bot. 3: 15, pl. 48. 1922.

Bibliography: Hook. f., Fl. Brit. Ind. 6: 575. 1893; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 158. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 60, 67, & 286. 1903; Fyson, Journ. In-

dian Bot. 3: 15, pl. 48. 1922; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 158. 1941; Moldenke, Known Geogr. Distrib. Erioc. 23 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 126 & 205. 1949; Moldenke, Résumé 159, 162, & 482. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 158. 1959; Moldenke, Résumé Suppl. 1: 11, 17, & 25 (1959) and 11: 5. 1964; Thanikaimoni, Pollen & Spores 7: 185. 1965.

Illustrations: Fyson, Journ. Indian Bot. 3: pl. 48. 1922.

Actually this taxon is based on W. Griffith 5578 & 5680 and C. B. Clarke s.n., not just on the first of these as implied by me in a previous installment of these notes. Griffith 5558, in the herbarium of the Botanisches Museum at Berlin, has a note appended to its label to the effect that it is "one of the Type specimens!", but this number is not cited in the original description of the species, and so I fail to see how it has any claim whatever to cotype status.

Recent collectors describe the plant as "deep-rooted at bottom of slow-moving stream at the margin in soft mud". It has been found growing at altitudes of 4000 feet, flowering and fruiting in December. Thanikaimoni (1965) reduces it to straight synonymy under E. miserum Körn., while Fyson (1922) regarded it as a variety of the latter.

Additional & amended citations: PAKISTAN: East Bengal: W. Griffith 5558 (B), 5578 (F--photo of cotype, K--cotype, N--cotype, N--photo of cotype, Sg--photo of cotype, Z--photo of cotype). INDIA: Bombay: P. V. Bole 1108 (Xa), 1137 (Xa). Mysore: Padmara-jaiiah 50 (Bn--3202).

ERIOCAULON MODESTUM Kunth

Synonymy: Eriocaulon proximum Steud., Syn. Pl. Glum. 2 (Cyp.): 280. 1855. Eriocaulum modestum Lesq., Rep. U. S. Geol. Surv. Terr. 7: 106, sphalm. 1878. Eriocaulon moldenkei Herter, Revist. Sudam. Bot. 8: 163--164. 1950. Eriocaulon modestum Auct. ex Herter, Revist. Sudam. Bot. 9: 188, in syn. 1954. Eriocaulon modestum f. elatior Ruhl. ex Moldenke, Résumé Suppl. 1: 17, in syn. 1959.

Bibliography: Kunth, Enum. Pl. 3: 547. 1841; Steud., Syn. Pl. Glum. 2 (Cyp.): 280. 1855; Walp., Ann. 5: 930 (1858) and 6: 1171. 1861; Körn. in Mart., Fl. Bras. 3 (1): 476, 493, & 500, pl. 42, fig. 2. 1863; Lesq., Rep. U. S. Geol. Surv. Terr. 7: 106. 1878; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 23 & 25, fig. 12 J & K. 1888; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 & 879. 1893; Ruhl. in Engl., Pflanzenreich 13 (4-30): 43, 58, 286, & 287. 1903; Alv. Silv., Fl. Mont. 1: 12, 20, & 398. 1928; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 & 879. 1946; Moldenke, Known Geogr. Distrib. Erioc. 8, 37, & 39. 1946; Moldenke, Lilloa 14: 65. 1948; Castell., Lilloa 20: 245--246, fig. 3. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 77, 100, & 205. 1949; Moldenke, Phytologia 3: 334--335. 1950; Herter, Revist. Sudam. Bot. 8: 163--164. 1950; Rambo, Anais

Bot. 2: 128. 1950; E. J. Salisb., Ind. Kew. Suppl. 11: 88. 1953; Herter, Revist. Sudam. Bot. 9: 188. 1954; Rambo, Sellowia 6: 130. 1954; Reitz, Sellowia 7: 124. 1956; Moldenke in Dawson, Los Angeles Co. Mus. Contrib. Sci. 7: 5. 1957; Reitz, Sellowia 11: 31 & 103. 1959; Moldenke, Résumé 89, 119, 290, 291, & 482. 1959; Moldenke, Résumé Suppl. 1: 17. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 & 879. 1960; Rennó, Levant. Herb. Inst. Agron. 69. 1960; Angely, Fl. Paran. 16: 51 (1960) and 17: 24. 1961; Reitz, Sellowia 13: 52, 72, & 90. 1961; Angely, Fl. Anal. Paran., ed. 1, 199. 1965; Moldenke, Résumé Suppl. 14: 2. 1966; Moldenke, Phytologia 18: 261 & 264. 1969.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 42, fig. 2. 1863; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 23, fig. 12 J & K. 1888; Castell., Lilloa 20: 245, fig. 3. 1949.

This is a widely distributed species, found in Brazil from Pernambuco, Piauí, and Goiás, through Bahia, Minas Gerais, Rio de Janeiro, Matto Grosso, and São Paulo, to Paraná, Santa Catarina, and Rio Grande do Sul, and into Uruguay. It is based on Luschnath s.n. from "Praya Sernambatypa" and Gaudichaud 103 from "Insula S. Catharinae", in "Brasília meridionalis". Eriocaulon modestum f. elatior Ruhl. appears to be based on G. Gardner 2958 from Piauí, deposited in the herbarium of the Botanisches Museum at Berlin. The initial letter of the specific epithet is upper-cased by some authors for no valid reason.

The species has been found by recent collectors in very wet ground, marshy places, and swamps, at altitudes of 2 to 1500 meters, flowering and fruiting in February to May, September, November, and December. Vernacular names recorded for it are "capim manso", "capipoatinga", "gravatá manso", and "sempreviva do campo". Osten found it growing on swampy dunes with Drosera brevifolia Pursh, Utricularia sp., Laurembergia tetrandra Kan., Microcala quadrangularis Griseb., and Lycopodium alopecuroides L.; Dawson found it "in an island of dense forest with stream flowing through"; while Irwin, Maxwell, & Wasshausen describe it as "cespitose; inflorescence to 15 cm. tall; heads whitish; in wet depression near creek, grazed campo and cerrado, upland valley".

Rambo (1950) comments: "Citada por FB para a Ilha de Sta. Catarina, foi constatada em Mostardas por um exemplar da Herbário Anchieta, para os arredores da cidade do Rio Grande por Malme, e para o Uruguai por Herter; no litoral norte ainda não a encontrei."

Osten states that his no. 22940c was growing with a Leiothrix species (no. 23141) and a Sphagnum species (no. 23138). Castellanos (1949) cites the following collections: BRAZIL: Santa Catarina: Reitz 1244. URUGUAY: Castellanos s.n. [29.XII.1946; Herb. Miguel Lillo 15182]; Garalt s.n. [23.X.1933; Herb. Osten 22940], s.n. [6.XI.1933; Herb. Osten 22940b], s.n. [2.I.1934; Herb. Osten 22940c]; Herter 99864; Legrand 961; Osten s.n. [25.XI.1935; Herb. Mus. Montev. 5845]; Rosengurtt B.3900; Steer s.n. [23.XI.1923;

Herb. Osten 16903] and comments "El ejemplar no. 22940b vid. Malme, presenta una de las cebezuelas proliferas, según esto sería E. m. for. viviparum Herzog". Silveira (1928) cites A. Silveira 206 from Minas Gerais.

Herter (1950), in proposing his new peripheral species, says: "Es ist eine oft zu beobachtende Erscheinung, dass die Arten von Gattungen und Familien, deren Hauptverbreitung in den Tropen liegt, an der Peripherie ihrer Areale kleiner sind als im Zentrum. So sind im Uruguay-gebiet unter den Farnen die letzten polwärts ausstrahlenden Trichomanes-Arten kleiner als ihre brasilianischen Verwandten. Ähnlich liegt der Fall bei der winzigen Anogramma lorentzii, bei Marginaria dielsii, bei vielen Dryopteris- und Selaginella-Arten. Unter den Siphonogamen nenne ich Butia stolonifera, Mangonia tweediana, Feliponiella uruguaya, Heteranthera osteniana. Das gilt nun auch für ein kürzlich von mir in Uruguay aufgefundenes Eriocaulon, das sich von der nächstverwandten, im benachbarten Brasilien vorkommenden Art, E. modestum, vor allem durch seine Kleinheit auszeichnet. Dank des Entgegenkommens meines Freundes Dr. Harold N. Moldenke, Kurator und Administrator des New York Herbariums, dem ich die neue Art widme, konnte ich den Typus des E. modestum Kunth aus dem tropischen Brasilien vergleichen und dank der Gefälligkeit der Herrn Major K. Enrich und Padre B. Rambo SJ in Porto Alegre konnte ich auch südbrasilianisches Material untersuchen. Eriocaulon moldenkei Hert. spec. nov. — Differt ab E. modesto Kunth cui similis radicibus numerosissimis densis filiformibus tortuosis vix 0.5 mm diam., foliis anguste lineari-lanceolatis subrigidis acuminatis lucidis vix fenestratis, 2—2.5 cm long., basi 2 mm lat. — E. modestum Kunth differt radicibus paucioribus 1 mm diam., foliis subtriangularibus, non lucidis, 4—5 cm long., basi 5, saepius 6—8 mm lat., distinctissime fenestratis. Hab.: Uruguay: Canelones, Parque del Plata, in dunis humidis, fl. XII—III, leg. Herter, Pl. Ur. exs. 2110."

Material has been misidentified and distributed in herbaria under the names E. leptophyllum Kunth, E. modestum f. grandifolium Herzog, and "E. aff. E. septangulare With." On the other hand, the Perrottet 1166, distributed as E. modestum, is actually E. leucomelas Steud. Riedel 11476 is a mixture with E. modestum f. viviparum Herzog.

Citations: BRAZIL: Brasilia: Irwin & Soderstrom 6134 (N). Goiás: E. Y. Dawson 114655 (Z); Glaziou 22309 (S). Minas Gerais: P. Clausen 63 (S), s.n. [1845] (Qu); Heringer 3523 (B); Irwin, Maxwell, & Wasshausen 19585 (Rf); Mosén 1058 (P, S, S), 1059 (S, S); L. Riedel s.n. [Rio S. Francisco, Sept. '34] (B); Widgren 169 (S, S), 821 (S, S), s.n. (S). Paraná: Dusén 2467 (S); Reitz & Klein 17625 (Ac). Piauí: G. Gardner 2958 (B, N, W—937206). Rio de Janeiro: Raben 965 (Br). Rio Grande do Sul: Malme 244 (S), 311 (S). Santa Catarina: Gaudichaud 103 (B—cotype, P—cotype); Reitz 5605 (N), C.115 [Herb. Barbosa Rodrigues 966] (N), C.1244

(N); Reitz & Klein 662 (N); Smith & Reitz 5892 (W--2120180). São Paulo: Brade 7196 [Herb. Inst. Biol. S. Paulo 6590] (N), 12226 (S); Burchell 4186 (Br, T); Löfgren 168 (P); L. Riedel 1176, in part (B, B, M, S). State undetermined: Herb. A. Gray s.n. [Brazil] (T); Sellow 115 (B, Br); Weddell 1846 [no. 46; São Francisco de Chave] (Br). URUGUAY: Herter 2110 [Herb. Herter 99864] (B, S, S); Osten 2294Ob [Nov. 6, 1933] (S), 2294Ob [Nov. 27, 1933] (S), 2294Oc (S); Pedersen 3653 (N, S, W--2283842). CULTIVATED: Brazil: Widgren 169 (S). MOUNTED ILLUSTRATIONS: drawings & notes by Körnigke (B); Mart., Fl. Bras. 3 (1): pl. 42, fig. 2 (B).

ERIOCAULON MODESTUM f. GRANDIFOLIUM Herzog

Bibliography: Moldenke, Known Geogr. Distrib. Erioc. 8. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 77 & 205. 1949; Moldenke, Résumé 89 & 482. 1959.

Nothing is known to me about this taxon except that it is supposed to be endemic to São Paulo, Brazil. The Brade 7196 [Herb. Inst. Biol. S. Paulo 6590], identified by Herzog as this form and so distributed, appears to be typical E. modestum Kunth and is so cited by me. If, by any chance, this should be the type collection of the form, then the form should be sunk in the synonymy of E. modestum.

ERIOCAULON MODESTUM f. RIGIDIFOLIUM Herzog

Synonymy: Eriocaulon modestum f. rigidifolia Herzog in Luetzelburg, Estud. Bot. Nordeste 3: 147. 1923.

Bibliography: Herzog in Luetzelburg, Estud. Bot. Nordeste 3: 147 & 150. 1923; Moldenke, Phytologia 3: 335. 1950; Moldenke, Résumé 89, 290, & 482. 1959.

Nothing is known to me about this taxon except that Herzog (1923) affirms it to be typical of the "brejo" in Goiás, where it is apparently endemic, the type being from Rio das Femeas.

ERIOCAULON MODESTUM f. VIVIPARUM Herzog

Synonymy: Eriocaulon modestum f. vivipara Herzog in Luetzelburg, Estud. Bot. Nordeste 3: 147 & 150. 1923.

Bibliography: Herzog in Luetzelburg, Estud. Bot. Nordeste 3: 147, 149, & 150. 1923; Moldenke, Known Geogr. Distrib. Erioc. 8. 1946; Castell., Lilloa 20: 246. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 77 & 205. 1949; Moldenke, Phytologia 3: 335. 1950; Angely, Fl. Paran. 10: 14. 1957; Moldenke, Résumé 89, 290, & 482. 1959; Angely, Fl. Paran. 16: 51 (1960) and 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 199. 1965.

The type of this form was apparently collected on the Rio Preto in Brazil, where the plant is said to be typical of the "brejo". Herzog (1923) indicates that this type locality is in the state of Bahia, but the label on the isotype specimen in the Britton Herbarium states plainly that the locality is in Goiás. Actually, there is a Rio Preto also in Minas Gerais and one in Rio de Janeiro.

Only one very old scape out of seven on the Stockholm herbarium sheet of Dusén 2467 shows the characteristic vivipary of this form, but the other six scapes are actually all too young to be expected to show it. Castellanos (1949) affirms that one scape of Osten 2294Ob, from Uruguay, also is viviparous. The Riedel 1476, cited below, is a mixture with typical E. modestum Kunth.

Citations: BRAZIL: Goiás: Luetzelburg 15510 (N--isotype). Paraná: Dusén 2467 (S). São Paulo: L. Riedel 1476, in part (B, Ut-332).

ERIOCAULON MOKALENSE Moldenke

Bibliography: Moldenke, *Phytologia* 3: 414--415. 1951; Moldenke in Humbert, *Fl. Madag.* 36: 14 & 16, fig. 2 (12--14). 1955; G. Taylor, *Ind. Kew. Suppl.* 12: 55. 1959; Moldenke, *Résumé* 156 & 482. 1959.

Illustrations: Moldenke in Humbert, *Fl. Madag.* 36: 14, fig. 2 (12--14). 1955.

This species is endemic to Madagascar and is known thus far only from the original collection. Eriocaulon apiculatum H. Lecomte, E. heterochiton Körn., and E. mokalense Moldenke need further study. They are obviously very closely related and may even prove to be conspecific.

Citations: MADAGASCAR: Decary 10229 (N--isotype, N--photo of type, P--type, Z--photo of type).

ERIOCAULON MOLINAE L. O. Williams

Synonymy: Eriscaulon molinae L. O. Williams, *sphalm.* in herb.

Bibliography: L. O. Williams, *Fieldiana Bot.* 31: 255--256. 1967; Moldenke, *Résumé Suppl.* 17: 2. 1968.

The type of this species was collected by Albertina R. Molina (no. 18500) -- in whose honor it is named -- abundant on the marshy savannas around the quebrada El Chorríto, Cerro de Hule, 20 km. south of Tegucigalpa, Morazán, Honduras, at an altitude of 1500 meters, on October 27, 1966, and is deposited in the herbarium of the Field Museum at Chicago. Williams (1967) cites also Molina 1740, P. C. Standley 25028 & 29141, and Williams & Correll 29289 from the same department, where in some places it is said to be scarce in shallow open bogs, while in other localities it is common in swampy swales and meadows, at altitudes of 1300--1600 m., flowering and fruiting from October to December. Molina found it also "en pántano, colinas empantanadas, área de pino y roble". Swallen encountered it in water at the edge of a large marsh. Williams (1967) comments that "The species seems to be most closely allied to E. mexicanum Moldenke of the species known from Central America and Mexico. The species being described is more delicate with differences also in detail of floral structure. We have known this species for many years but have misdetermined it as E. seemanii Moldenke, a dimerous species known from lowland Panama." Williams & Correll describe the heads as "blackish".

Citations: HONDURAS: Morazán: Swallen 11173 (W--2085936); Williams & Correll 29289 (N).

ERIOCAULON MONOCOCCOS Nakai

Synonymy: Eriocaulon monococcon Nakai ex Nakai & Honda, Nov. Fl. Jap. 6: 12, 39, 79, & 87, fig. 16. 1940.

Bibliography: Nakai in Matsumura, Icon. Pl. Koisikav. 2: 35, pl. 102. 1914; Prain, Ind. Kew. Suppl. 5, pr. 1, 97. 1921; Mak. & Nemoto, Fl. Jap., ed. 1, 1306 (1925) and ed. 2, 1512. 1931; Miyabe & Kudô, Fl. Hokk. & Saghal. 3: 287. 1932; Nemoto, Suppl. Fl. Jap. 1039. 1936; Honda, Nom. Pl. Jap. 462. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 12, 39, 79, & 87, fig. 16. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 27--28, pl. 4, fig. 7. 1940; Moldenke, Known Geogr. Distrib. Erioc. 25 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Ohwi & Koyama, Journ. Jap. Bot. 30: 114 & 116. 1955; Moldenke, Résumé 173, 290, & 482. 1959; Prain, Ind. Kew. Suppl. 5, pr. 2, 97. 1960; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 180, 181, & 429, fig. 123 (2). 1964.

Illustrations: Nakai in Matsumura, Icon. Pl. Koisikav. 2: pl. 102. 1914; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 39, fig. 16. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] pl. 4, fig. 7. 1940; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 180, fig. 123 (2). 1964.

The type of this species was collected by Gen-Iti Koidzumi in the province of Isikari, Hokkaido, Japan, and is deposited in the herbarium of Tokyo University. A common name recorded for the species is "ezo-husikusa", and it has been collected in flower and fruit in August and September. Satake (1940) cites the following collections: JAPAN: Hokkaido: Arimoto s.n. [Sept. 1902]; Koidzumi 91154-55-H; Miyabe & Yokoyama s.n. [Sept. 1938]; Nakai s.n. [Sept. 1939]; Nisida s.n. [Sept. 1912]; Numaziri s.n. [Sept. 1918]; Takemubo s.n. [Aug. 1882]; Tatewaki 462; Tokubuti s.n. [Sept. 1894]. Honshu: Murata 7. He regards E. monococcus var. latifolium Nakai as a synonym.

ERIOCAULON MONOCOCCOS var. LATIFOLIUM Nakai

Synonymy: Eriocaulon monococcon var. latifolium Nakai ex Satake in Nakai & Honda, Nov. Fl. Jap. 6: 39 & 87. 1940.

Bibliography: Nakai in Matsumura, Icon. Pl. Koisikav. 2: 35. 1914; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 39 & 87. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 27. 1940; Moldenke, Known Geogr. Distrib. Erioc. 25 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Moldenke, Résumé 173, 290, & 482. 1959.

Satake (1940) regards this taxon as a synonym of the typical form of E. monococcus Nakai.

ERIOCAULON MONODII Moldenke

Bibliography: Moldenke, Phytologia 3: 165--166 (1949) and 3:

335. 1950; E. J. Salisb., Ind. Kew. Suppl. 11: 88. 1953; Monod, Bull. Inst. Fr. Afr. Noir 16: 316. 1954; Moldenke, Résumé 135 & 482. 1959.

Additional citations: SÉNÉGAL: J. G. Adam 18367 (2).

ERIOCAULON MONOSCAPUM F. Muell.

Bibliography: F. Muell., Fragm. 1: 94--95. 1859; Benth., Fl. Austral. 7: 191, 196, & 792. 1878; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878. 1893; Ruhl. in Engl., Pflanzenreich 13 (4-30): 33, 39, & 286. 1903; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878. 1946; Moldenke, Known Geogr. Distrib. Erioc. 28 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 153 & 205. 1949; Moldenke, Résumé 209 & 482. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878. 1960.

ERIOCAULON MUTATUM N. E. Br.

Synonymy: Eriocaulon huillense Rendle, Cat. Afr. Pl. Welw. 2: 95. May or June 1899 [not E. huillense Engl., 1959, nor Engl. & Ruhl., April 7, 1899]. Eriocaulon rendleanum Fritsch, Bull. Herb. Boiss., sér. 2, 1: 1105. October 1901.

Bibliography: Rendle, Cat. Afr. Pl. Welw. 2: 95. 1899; Ruhl. in Engl., Bot. Jahrb. 27: 78. 1899; N. E. Br. in Thiselt.-Dyer, Fl. Trop. Afr. 8: 256. 1901; Fritsch, Bull. Herb. Boiss., sér. 2, 1: 1105. 1901; Ruhl. in Engl., Pflanzenreich 13 (4-30): 33, 39--40, 281, 286, & 287. 1903; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 70. 1904; Prain, Ind. Kew. Suppl. 3: 69. 1908; H. Lecomte, Bull. Soc. Bot. France 55: 644 & 647. 1909; Moldenke, Known Geogr. Distrib. Erioc. 22, 35, 37, & 39. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 118, 119, & 205. 1949; Moldenke, Phytologia 3: 335. 1950; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 160, fig. 9 & 10, & 167--170, pl. 9, fig. 1. 1955; Moldenke in Humbert, Fl. Madag. 36: 14 & 15, fig. 2 (6--11). 1955; H. Hess, Bericht. Schweiz. Bot. Gesell. 67: 88--89. 1957; Moldenke, Résumé 147, 149, 156, 289, 291, & 482. 1959; Moldenke, Résumé Suppl. 1: 9. 1959; Moldenke, Phytologia 17: 384 (1968) and 18: 110. 1969.

Illustrations: H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 160, fig. 9 & 10, & pl. 9, fig. 1. 1955; Moldenke in Humbert, Fl. Madag. 36: 15, fig. 2 (6--11). 1955.

Annual plant; stems very short; leaves few or rather few, erect-cespitose, green, linear or narrowly deltoid, tapering to a point or subulate, 1.5 cm. long or shorter, about 0.6 mm. wide at the midpoint, about 3-veined, scarcely fenestrate, glabrous, turning yellowish in drying; scapes aggregate, few or many, pale-green throughout or pale yellowish-green below and green above, 4--12 cm. long, 3- or 4-costate or slightly angular and winged above, slightly twisted, glabrous; sheaths loose, scarcely inflated, green or pale-green, glabrous, obtuse at the apex or obliquely bifid, very obtuse and soon lacerate at the mouth; heads subglobose or globose to ovoid, black or nigrescent, 2--3.5 mm. wide, compressed in drying, glabrate; outer involucral bractlets oblong, pale-buff or fuscous-griseous, obtuse at the apex, glab-

rous, the inner ones acute or acutish at the apex and blackish; receptacle glabrous; receptacular bractlets elliptic-lanceolate or lanceolate, nigrescent, concave, acute at the apex; staminate florets: sepals 2, narrowly oblong-cuneate or linear, fuscous, glabrous; petal-tube unlobed at the apex; filaments white; anthers greenish-black; pistillate florets: sepals 2, obliquely sub-orbicular or very broadly obovate, navicular-concave, membranous, nigrescent, with a broadly winged keel on the back, glabrous; petals 2, narrowly cuneate, dark-fuscous or nigrescent, very obtuse or somewhat emarginate at the apex, glabrous, non-glanduliferous.

Rendle's binomial is actually the first to have been applied to this taxon, but did not appear in print until May or June of 1899, and is therefore invalidated by the E. huillense of Engler & Ruhland which seems to have appeared in print on April 7 of the same year and is a synonym of E. teusczii Engl. & Ruhl. Fritsch's E. rendleanum, proposed as a substitute name for Rendle's invalidated binomial, was not published until October in 1901 and is therefore antedated by Brown's E. mutatum, which appeared in print in September of that year.

Hess (1955) gives us very copious notes on the characters of this species and affirms that it is related to and hybridizes with E. angustisepalum H. Hess -- a hybrid which is discussed by me under the name xE. hessii Moldenke in this series of notes. In my 1955 work it is stated that E. mutatum grows on "Bords de torrents, boues, tourbières, marais" and that in the central portions of Madagascar it blooms from January to March, but on the west portion of that subcontinent in May. Actually, recent collectors have found this plant growing in boggy ground "under water of flooded pan until recently", in shallow seeping water, and on wet exposed mud on gently sloping rock faces in Tanganyika, at altitudes of 1030--1850 meters, flowering and fruiting from January to June.

Additional citations: TANGANYIKA: Endlich 410 (Mu); Milne-Redhead & Taylor 9920 (B), 10840 (B); Schlieben 1042 (B). ANGOLA: Bié: H. Hess 52/2061 (B). Huila: H. Hess 52/1755 (B, 2). RHODESIA: Brain 3736 (S). MADAGASCAR: Decary 7504 (N, P); Perrier de la Bâthie 2202 (N, P), 7255 (P), 7258 (N, P), 13762 (N, P), 17942 (N, P); Waterlot 476 (N, P, P).

ERIOCAULON NAKASIMANUM Satake

Bibliography: Satake, Journ. Jap. Bot. 15: 143. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 13, 64, 65, 81, & 87, fig. 31. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 54, pl. 9, fig. 18. 1940; Hill & Salisb., Ind. Kew. Suppl. 10: 86. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Moldenke, Résumé 173 & 482. 1959; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 185 & 429. 1964.

Illustrations: Satake in Nakai & Honda, Nov. Fl. Jap. 6: 65, fig. 31. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.]

pl. 9, fig. 18. 1940.

The type of this species was collected by K. Nakasima (no. 49) — in whose honor it was named — at Yakatabaru, near Hukuoka, in Tikuzen province, Kiushu, Japan, in October of 1937, and is deposited in the herbarium of Tokyo University. The only vernacular name recorded for the plant is "tukusi-kuroimunohige". It is described as endemic by Satake (1940).

ERIOCAULON NAKASIMANUM var. *SUPERANS* Satake

Bibliography: Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 54. 1940.

Satake (1940) describes this variety as follows: "A typo bracteis involucrantibus lanceolatis apice acutis 5--6 mm longis floribus conspicue superantibus differt". The type was collected by Z. Tasiro on Mount Kuzuzan, in Bungo province, Kiushu, Japan, in September of 1922, and is deposited in the herbarium of Toyko University. Thus far the taxon is known only from the original collection.

ERIOCAULON NAKAYENSE Koyama

Bibliography: Koyama, Philip. Journ. Sci. 84: 372--373, 377, & 378, pl. 2, fig. 1, & pl. 5, fig. A. 1956; Moldenke, Résumé 178 & 482. 1959; G. Taylor, Ind. Kew. Suppl. 13: 52. 1966.

Illustrations: Koyama, Philip. Journ. Sci. 84: pl. 2, fig. 1, & pl. 5, fig. A. 1956.

The type of this species was collected by Bunzô Hayata at Nakay, Thailand, on December 16, 1931, and is deposited in the herbarium of Tokyo University. Thus far the taxon is known only from the original collection.

ERIOCAULON NANELLUM Ohwi

Bibliography: Ohwi, Bot. Mag. Tokyo 44: 566. 1930; Mak. & Nemoto, Fl. Jap., ed. 2, 1512. 1931; A. W. Hill, Ind. Kew. Suppl. 8: 87. 1933; Nemoto, Suppl. Fl. Jap. 1039. 1936; Honda, Nom. Pl. Jap. 462. 1939; Satake, Journ. Jap. Bot. 15: 630 & 631. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 13, 65, & 87. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 55, pl. 10, fig. 10. 1940; Moldenke, Known Geogr. Distrib. Erioc. 25 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Koyama, Journ. Jap. Bot. 31: 6. 1956; Moldenke, Résumé 173 & 482. 1959; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 185 & 429. 1964; Moldenke, Résumé Suppl. 12: 9. 1965.

Illustrations: Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] pl. 10, fig. 19. 1940.

The type of this species was collected by Père Urbain Jean Faurie (no. 1247) on Mount Gassan, in Uzen province, Honshu, Japan, in September of 1897, and is deposited in the herbarium of Kyoto University. A common name recorded for the plant is "miyama-hinahosikusa". It has been collected in flower and fruit in September. Suzuki calls it a "rare endemic plant" and found it growing on a sunny wet plain in an alpine region at

1300 meters altitude. Hosoi encountered it by a pool in a subalpine region and says that it is "distinguished from E. atrum by slender habit and not pilose petals". Satake (1940) cites also Yuki 3912 & 58814 from Honshu island, where he says the species is endemic.

Citations: WESTERN PACIFIC ISLANDS: JAPAN: Honshu: Hosoi H.16 (2); Suzuki 163 [Herb. Suzuki 55-489212] (Ca--979049).

ERIOCAULON NANELLUM var. ALBESCENS Satake

Synonymy: Eriocaulon nanellum f. albescens (Satake) Murata ex Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 185. 1964.

Bibliography: Satake, Journ. Jap. Bot. 15: 630. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 13, 66, & 87, fig. 32. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 55--56. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Moldenke, Résumé 173 & 482. 1959; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 185 & 429. 1964; Moldenke, Résumé Suppl. 12: 9. 1965.

Illustrations: Satake in Nakai & Honda, Nov. Fl. Jap. 6: 66, fig. 32. 1940.

This variety differs from the typical form of the species in its pale (not black) heads, the receptacular bractlets of the staminate florets narrowly oblong and acute at the apex, and the sepals of the pistillate florets whitish.

The type of the variety was collected by S. Kobayasi (no. 9) on Mount Nyutumuri-yama, in Ugo province, Honshu, Japan, in August of 1938, where the variety is said to be endemic. Satake (1940) cites also Muramatsu 57466 from the type locality. The recommended vernacular name recorded for the plant is "sirobana-miyamahinahosikosa".

ERIOCAULON NANELLUM var. FILAMENTOSUM (Satake) Satake

Synonymy: Eriocaulon filamentosum Satake, Journ. Jap. Bot. 15: 140. 1939. Eriocaulon nanellum var. filamentosum Satake in Nakai & Honda, Nov. Fl. Jap. 6: 67 & 87. 1940.

Bibliography: Satake, Journ. Jap. Bot. 15: 140 & 631, fig. 1. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 7, 13, 67, [86], & 87, fig. 2 (d) & 33. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 56. 1940; Hill & Salisb., Ind. Kew. Suppl. 10: 86. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Moldenke, Résumé 173, 288, & 482. 1959; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 185 & 429. 1964.

Illustrations: Satake, Journ. Jap. Bot. 15: 140, fig. 1. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 7 & 67, fig. 2 (d) & 33. 1940.

This variety differs from the typical form of the species in having the calyx of the pistillate florets irregularly 3- or 4-lobed at the apex and the petals of the pistillate florets composed of subelongate cells.

The recommended vernacular name for the plant is "ito-hosikusa" Satake (1940) cites Hukuda 1094, Kobayasi 22, and M. Matuda 91453, all from what is presumably the type and only known locality, Hatimantai, in Ugo province, Honshu, Japan, where the variety is said to be endemic. It should be noted that Satake proposed this as a species on page 140 of his 1939 work and reduced it to varietal status on page 631 of the same volume and in the same year.

ERIOCAULON NANTOENSE Hayata

Synonymy: Eriocaulon nantoense Hayata apud A. W. Hill, Ind.

Kew. Suppl. 7: 89. 1929.

Bibliography: Hayata, Icon. Pl. Formos. 10: 51, fig. 28. 1921; Mak. & Nemoto, Fl. Jap., ed. 1, 1306. 1925; Sasaki, List Pl. Formos. 99. 1928; A. W. Hill, Ind. Kew. Suppl. 7: 89. 1929; Sasaki, Cat. Govern. Herb. 118. 1930; Mak. & Nemoto, Fl. Jap., ed. 2, 1513. 1931; Masamune, Short Fl. Formos. 262. 1936; Nemoto, Suppl. Fl. Jap. 1039. 1936; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 12, 30, 78, & 87. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 21, pl. 2, fig. 4. 1940; Moldenke, Known Geogr. Distrib. Erioc. 25 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 133 & 205. 1949; Moldenke, Résumé 172 & 482. 1959; Moldenke, Résumé Suppl. 12: 8. 1965.

Illustrations: Hayata, Icon. Pl. Formos. 10: 51, fig. 28. 1921; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] pl. 2, fig. 4. 1940.

The type of this species was collected by T. Kawakami at Nantō, in Taityū province, Formosa, in 1913, and is deposited in the herbarium of Tokyo University. The recommended vernacular name recorded for the plant is "Nantō-hosikusa". Satake (1940) cites also Kudō & Sasaki 15387, Suzuki 6609a, and Yamamoto s.n. from Formosa, where he regarded the species as endemic.

Citations: WESTERN PACIFIC ISLANDS: JAPAN: Kiushu: Sakata "C" (Z).

ERIOCAULON NANUM R. Br.

Bibliography: R. Br., Prodr. Fl. Nov. Holl. 254. 1810; Roem. & Schult. in L., Syst. Veg., ed. 15 nova, 2: 869. 1817; Spreng. in L., Syst. Veg., ed. 16, 3: 776. 1826; Kunth, Enum. Pl. 3: 571. 1841; Walp., Ann. 5: 934 (1858) and 6: 1171. 1861; Benth., Fl. Austral. 7: 191, 193, & 792. 1878; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878. 1893; Ruhl. in Engl., Pflanzenreich 13 (4-30): 281, 282, & 286. 1903; F. M. Bailey, Compreh. Cat. Queensl. Pl. 584, fig. 565. 1913; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878. 1946; Moldenke, Known Geogr. Distrib. Erioc. 28 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 153 & 205. 1949; Moldenke, Résumé 209 & 482. 1959; Moldenke, Résumé Suppl. 1: 17. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878. 1960; Moldenke, Phytologia 18: 61. 1968.

Illustrations: F. M. Bailey, Compreh. Cat. Queensl. Pl. fig. 565. 1913.

Kunth (1841) describes this taxon as follows: "Scapo striato (semiunciali), foliis glabris vix longiore; capitulo convexo, nigricante; squamis paleisque nudis, subovatis; perianthio femineo hexaphyllo, immaculato; masculo exteriori spathaceo; interiore obsoleto."

There is an E. nanum Klotzsch (1959) which is a synonym of E. ehrenbergianum Klotzsch. Material has been misidentified and distributed in herbaria as E. smithii R. Br.

Citations: AUSTRALIAN REGION: AUSTRALIA: Queensland: P. O. Flecker 2257 (Qu), 14453 (Z); Manski 3256 (Qu).

ERIOCAULON NAUTILIFORME H. Lecomte

Bibliography: H. Lecomte, Journ. de Bot. 21: 89, [101], & 105-106. 1908; H. Lecomte, Not. Syst. 2: 215 & 393. 1913; Prain, Ind. Kew. Suppl. 4, pr. 1, 82 (1913) and ed. 2, 82. 1938; Moldenke, Known Geogr. Distrib. Erioc. 26 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 136 & 205. 1949; Moldenke, Résumé 176 & 482. 1959.

Citations: INDOCHINA: Cambodia: Thorel 1593 (B--cotype).

ERIOCAULON NEESIANUM Körn.

Synonymy: Eriocaulon thwaitesii Hook. f. in Trimen, Handb. Fl. Ceylon 5: 2, 6, & 412. 1900 [not E. thwaitesii Körn., 1856].

Eriocaulon thwaitesianum Körn. ex Moldenke, Résumé Suppl. 1: 18, in syn. 1959.

Bibliography: Körn., Linnaea 27: 628. 1854; Walp., Ann. 5: 936 (1858) and 6: 1171. 1861; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878. 1893; Hook. f., Fl. Brit. Ind. 6: 585. 1893; Hook. f. in Trimen, Handb. Fl. Ceylon 5: 2, 6, & 412. 1900; Ruhl. in Engl., Pflanzenreich 13 (4-30): 103, 105, 286, & 287. 1903; Fyson, Journ. Indian Bot. 3: 18. 1922; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878. 1946; Moldenke, Known Geogr. Distrib. Erioc. 24, 37, & 41. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 130 & 205. 1949; Moldenke, Résumé 167, 293, & 482. 1959; Moldenke, Résumé Suppl. 1: 18. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878. 1960; Moldenke, Phytologia 18: 186. 1969.

The E. thwaitesii Körn., referred to in the synonymy above, is a valid species.

Citations: CEYLON: G. Gardner 936 (B--type, Z--isotype).

ERIOCAULON NEGLECTUM Ruhl.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 43, 59, & 286. 1903; Prain, Ind. Kew. Suppl. 3: 69. 1908; Moldenke, Known Geogr. Distrib. Erioc. 8 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 77 & 205. 1949; Moldenke, Résumé 89 & 482. 1959.

Citations: BRAZIL: Goiás: G. Gardner 4381 [Macbride photos 29987] (B--isotype, N--photo of type, Z--isotype). Rio Branco: Black 51-12572 (N), 51-12624 (N).

ERIOCAULON NEO-CALEDONICUM Schlecht.

Synonymy: Eriocaulon neocaledonicum Schlecht. apud Guillaum., Ann. Mus. Colon. Marseille, sér. 2, 9: 256. 1911. Eriocaulon neocaledonica Schlecht. apud Rendle, Journ. Linn. Soc. Lond. Bot. 45: 260, sphalm. 1921.

Bibliography: Schlecht. in Engl., Bot. Jahrb. 40, Beibl. 92: 20. 1908; Guillaum., Ann. Mus. Colon. Marseille, sér. 2, 9: 256. 1911; Prain, Ind. Kew. Suppl. 4, pr. 1, 82. 1913; Rendle, Journ. Linn. Soc. Lond. Bot. 45: 260. 1921; Däniker, Vierteljahrsschr. Naturf. Gesell. Zürich 77, Beibl. 19: 91. 1932; Prain, Ind. Kew. Suppl. 4, pr. 2, 82. 1938; Moldenke, Known Geogr. Distrib. Erioc. 27 & 37. 1946; Guillaum., Fl. Analyt. & Synopt. Nouv.-Caléd. 49--50. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 151 & 205. 1949; Moldenke, Résumé 205 & 482. 1959; Moldenke in Guillaum., Mém. Mus. Hist. Nat. Paris, new ser. B, 15: 6. 1964; Guillaum., Thorne, & Viot, Univ. Iowa Stud. Nat. Hist. 20 (7): 26. 1965; Moldenke, Phytologia 18: 270. 1969.

Franc refers to this species as "rare". Baas Becking 6085, Baumann 15244, and Guillaumin & Baumann 6491 appear to be typical. Däniker (1932) says "NC : D [äniker] 186a, bl. u. bt., in den Teichen des sumpfigen Talbodens des Yatétales (4.X.24) auf den Feldetiquette steht die Notiz: 'Form von 186 (d.i., Eriocaulon schmithii R. Br.) am Rande der Tümpel wachsend, oft submers und nur die Blütenköpfe über das Wasser streckend.' Wenn das nun auch nicht zutrifft, insofern es sich um zwei Arten handelt, so ist doch zu bemerken dass infolge der stark wechselnden Standortsbedingungen je nach dem Grade der Ueberschwemmung des schlammigen Bodens Eriocaulon neocaledonicum Schltr. habituell sehr verschiedengestaltig auftreten kann und insbesondere das Längenverhältnis zwischen den Blättern und dem Schaft dadurch beeinflusst wird; D [äniker] 186b, bl. u. br., am Ufer des Lac Arnaud (6.X.24) kleine Horste auf nacktem Eisenboden."

Guillaumin (1948) keys this species from the other species of New Caledonia known to him as follows:

1. Plants robust; leaves 20—35 cm. long; heads globose; scape 6-ribbed, 20—30 cm. long.....E. pancheri H. Lecomte.
- 1a. Plants very dwarf; leaves 13 cm. long or longer.
2. Heads globose.
3. Scares plainly ribbed.
4. Scares 6-ribbed, 14--16 cm. long; leaves 5--13 cm. long; pistillate sepals obtuse.....E. comptonii Rendle.
- 4a. Scares 5-ribbed, 8--20 cm. long; leaves 3--7 cm. long; pistillate sepals acute.....E. scariosum J. Sm.
- 3a. Scares almost cylindric, 5--8 cm. long; leaves 3--7 cm. long.....E. neo-caledonicum Schlecht.
- 2a. Heads turbinate, very small; scape 7-ribbed, extremely long, 10--100 cm.....E. longipedunculatum H. Lecomte.

According to information on the labels, Hürlimann 3191 was found in a swamp on serpentine rock, while no. 3265 was found in a temporary lake at 155 meters altitude. The former is said by

this collector to grow "15--20 cm. tall" and the latter "to 10 cm. tall", but the actual specimen of 3265 seen by me was no more than 1 cm. tall. His no. 3271 bears a note stating that is "leaves are in rosettes, to 20 cm. tall, forming a distinct zone!" In this connection, a letter from Dr. Hürlimann to me, dated April 8, 1962, is well worth quoting here: "As regards the Eriocaulon specimens from New Caledonia, I think that the specimens are more worthy to be trusted than my subjective indications of dimensions! (As a matter of fact, I have not measured the plants on the spot but noted down only my estimation.) Anyhow, I certainly agree with your view that ecological conditions will probably influence very much the size of the plants (leaves and scape), and only cultivation experiments can show what is really stable in these plants. I have always been surprised to find colonies under the most xerophytic conditions for periods of several months, e. g., in the sinkholes of 'Plaine des Lacs' with water level changes of several meters, on completely dried-out soil covered by sheets of algae and mud.

"What I wonder, however, is the importance of the characters given in Guillaumin's 'Flore analytique....' for distinguishing the species, and especially the value of the cross-section of the scape: 'almost cylindrical' in E. neo-caledonicum, with 5 edges in E. scariosum, with 6 edges in E. pancheri and E. comptonii and with 7 in E. longipedunculatum.....I remember that in some cases, I definitely noticed edges on the scapes of specimens..... There is also some contradiction in the characters of E. comptonii (found by Compton precisely in the places where I collected, too) between the original diagnosis and the key given by Guillaumin: Rendle writes: 'flore foemineo: sepalis 3 ovatis acutis valde carinatis...', but Guillaumin: 'verticille externe du périgone de la fleur ♀ à pièces obtuses'! Rendle indicates also that E. comptonii differs from E. neo-caledonicum in the form of the floral bracts and sepals, but I do not have the diagnosis of the latter given by Schlechter. On the other hand, Daeniker.....indicates E. neo-caledonicum and E. 'Schmithii' R. Br. from the same region, but again without mentioning the differences. I really think that --unless you have already done so -- a clearing up of the mess found in the literature would be highly desirable!"

With this conclusion I agree whole-heartedly, but unfortunately I do not have the time to undertake the task. The citations given below are strictly tentative.

Guillaumin (1911) cites Franc 266 and LeRat 131a. Guillaumin, Thorne, & Virot (1965) cite Thorne 28618 from New Caledonia. Franc A.266 is a mixture with something non-ericaulaceous. Material has been misidentified and distributed in herbaria as E. pancheri H. Lecomte.

Citations: MELANESIA: NEW CALEDONIAN ISLANDS: New Caledonia: Baas Becking 6085 (Hr); Baumann 6289 (Ca), 6379 (Z), 15244 (Z); Franc A.266, in part (B--cotype, Ca--54182--cotype, Ca--390298--cotype, Ca--390300--cotype, N--cotype, N--cotype, N--cotype), s.n.

(Ca--390299); Guillaumin & Baumann 6491 (Z); Hürlimann 1498 (Z), 3038 (Z), 3191 (Z), 3265 (Z), 3271 (Hr), 3290 (Z); Kraspolin s.n. [N. C.] (Ut--417); LeRat 131a (B--cotype); McKee 3383 (Go).

MOUNTED DESCRIPTIONS: Echlecht. in Engl., Bot. Jahrb. 40, Beibl. 92: 20 (B).

ERIOCAULON NEPALENSE Prescott

Synonymy: Eriocaulon viride Körn., Linnaea 27: 637. 1856.

Eriocaulon quinquangulare Wall. apud Walp., Ann. 5: 938, in syn. 1858 [not E. quinquangulare Bojer, 1964, nor Heyne, 1832, nor L., 1743, nor Mart., 1854, nor Wight, 1832, nor Willd., 1959]. Eriocaulon nepalense Bong. apud Walp., Ann. 5: 938. 1858. Eriocaulon nepalense Kunth apud Walp., Ann. 5: 938, in syn. 1858. Eriocaulon nepalense "Presc. ex Bong." apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1283. 1895.

Bibliography: Bong., Mém. Acad. Pétersb., sér. 6, 1: 610. 1831; Bong., Ess. Monog. Erioc. Brés. 10. 1831; Kunth, Enum. Pl. 3: 554. 1841; Körn., Linnaea 27: 637. 1856; Walp., Ann. 5: 938 (1858) and 6: 1171. 1861; Körn. in Miq., Ann. Mus. Bot. Lugd. 3: 163. 1967; Hook., Fl. Brit. Ind. 6: 581 & 585. 1893; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 879 (1893) and 2: 1283. 1895; Ruhl. in Engl., Pflanzenreich 13 (4-30): 64, 88, 286, & 288. 1903; Fyson, Journ. Indian Bot. 2: 198. 1921; Moldenke, Known Geogr. Distrib. Erioc. 23, 37, & 41. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 879 (1946) and 2: 1283. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 125, 126, & 205. 1949; Moldenke, Phytologia 3: 336. 1950; Santapau, Pl. Purandhar 136. 1957; Moldenke, Résumé 159, 160, 162, 293, & 482. 1959; Moldenke, Résumé Suppl. 1: 11 & 18. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 879 (1960) and 2: 1283. 1960; N. C. Nair, Bull. Bot. Surv. India 6: 233. 1964; Thanikaimoni, Pollen & Spores 7: 185. 1965; Moldenke, Résumé Suppl. 17: 10. 1968; Moldenke, Phytologia 18: 264 & 274. 1969.

Illustrations: Fyson, Journ. Indian Bot. 2: pl. 6. 1921.

Because of various interpretations which have been applied to this taxon, it seems desirable to repeat here certain important descriptions. Bongard (1831) describes it as "Acaule; foliis radicalibus reticulatis, lineari-lanceolatis, obtusis, glabris; pedunculis (caespitosis) elongatis, glabris; vaginis folia subaequantibus, bifidis; capitulis lanatis, minoribus". Kunth (1841) amplifies this, but adds comments indicating some doubts on his part: "Caule brevi, simplici, radiculoso, superne folioso; foliis gramineo-linearibus, obtusiusculis, fenestrato-multinerviis, pelucidis, glabris, vaginas superantibus; pedunculis fasciculato-congestis, 5?-sulcatis, glabris; capitulis albido-villosulis; bracteis involucrentibus obovatis, apice rotundatis, flores stipantibus rhombo-cuneatis, subacuminatis; floribus masculis hexandris; femineis trigynis; calyce masculino interiore limbo irregulariter trilobo: lobis eglandulosus?, apice ciliatis; sepalis masculis exterioribus distinctis; femineis interioribus ciliatis."